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“The MoROLL” GOES TO HABITARE

From Idea to Prototype – The Evolution of A Designer and His Design

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Title:

“The MoROLL” GOES TO HABITARE

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Abstract:

This study documents the history of the furniture design “The MoROLL”, and the design thinking behind it. It is the story of a design’s development from an idea, its participation in a worldwide design competition, and getting acknowledged there, to the building of a fully functioning prototype and its successful exhibition at the international design and furniture fair “Habitare 2010”.

As a progress report, it follows the designer’s metamorphosis from a dependent student into an independent professional, describes his personal growth, and looks critically at him and his environment. It shows the innovativeness and "outside the box" thinking in ideation, design development, prototyping, tooling and execution.

The thesis follows the development of design and designer chronologically over the course of more than two years, starting with the idea’s original conception as early as September 2007. It explores the human aspects of human-centered design; the human needs, which led to the design idea, and the human nature of the designer, which gave the idea a form, which became a design with a function. The report shows how the designer learned by doing, by taking small steps, and how intuition, commitment, trust, and support from unsuspected sources helped the project along. Trials and errors, failures and successes are documented in equal measure. The author reflects on lessons learned in the process of designing, and his development and growth as a designer, and in the end as a person.

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1 INTRODUCTION

This thesis report shows the translation and realization of an experimentally conceived structure into a 1:10 model, and from that into a 1:1 physical, fully functioning prototype. During its designing and production phases, parameters such as functionality, materiality in relation to manufacturing techniques and production facilities, costs, and manufacturing possibilities had to be taken under consideration. During this process, the relations of form, material, production, and workers were tested, and often had to be reconsidered.

The study documents the history of the design of “The MoROLL”, and the design thinking behind it. It is the story of a design’s journey, its design development from an idea, to its participation in a design competition, and to getting acknowledged in a worldwide design competition. Among the entries of more than 1,600 participants from design schools around the world, it was selected and published as one of the twenty best. The actual reward of being in the top 20 was that it gave me enough confidence to pursue the actual production of a prototype. It also gave my school, the North Karelia University of Applied Sciences (NKUAS), enough motivation to ask me to exclusively represent it with my design at the annual International Furniture and Design Exhibition Habitare in Helsinki.

As a progress report, it follows the designer's metamorphosis from a dependant student into an independent professional, describes his personal growth, and looks critically at him and his environment. If the design was innovative, so were the ways of its production. The design thinking that had led to "The MoROLL" was "outside the box"; it was never inside a "box", within any conventions or limits related to furniture design. Therefore, no guidelines could be followed, no processes copied or repeated, nor former failures of others heeded. No rules had to be followed, or needed to be broken. I had to make my own mistakes, and carry my own responsibilities. I should suffer my own consequences, toil by myself through my own struggles, but I would also celebrate my own successes. The report follows the development of design and designer chronologically over the course of more than two years, starting with the idea's original conception as early as September 2007. Put aside during his first year of study, the designer picked it up for further development at the beginning of his second year. During a summer vacation in 2008, he discovered a corresponding need for his design idea. An idea for a form became a design with a function. Diary entries, e-mail correspondence, and photographic documentation allowed the author to record the development accurately.

This thesis report is an account of change, of confusion turning into direction, of pursuing many options to achieve one goal. It explores the human aspects of human-centered design; the human needs, which led to the design idea, and the human nature of the designer, which gave the idea a form. My willingness, courage, tolerance, patience, perseverance, and my physical and emotional resilience were tested. The report shows how I learned by doing, by taking

small steps, how intuition, trust, and help from unsuspected sources led to success. And it tells of trials and errors, of simultaneous processes, which together turned into progresses, and finally successes. In the end, my idea of success has changed as well. Before, success was getting the outcome that I had wished for. Afterwards, success became wishing for the outcome that I had gotten.

The outcome was a fully functioning prototype. By the time this report is published, the design has been in consistent public use for more than one year. Yet, it is still considered more a design proposal, than a design that is ready for production. Although it could be produced as is, in its form, size and materials, the further development of the design is of much bigger interest. Different materials tempt to be tested in the form and use of "The MoROLL". Both use and user could change. Different versions of the design ask to be explored. Some had been part of the early stages of the design thinking and design development, for example the version of a rocking chair. Other versions included a prefixed combination of two different functions in one chair, as well as flexible functions, or a simple one-seater. Materials in consideration included wood, bamboo, cardboard, recycled plastic, fiber composites, metal, and concrete. As public furniture, it lends itself to be produced in all kinds of materials, depending on its use and its environment. When exposed to public use, the furniture, its form, its function, and its material, can and will be tested for endurance, sustainability, functionality, and acceptance by the user.

"The MoROLL" was an original design idea, which I had developed independently from any school projects, and prior to the International Design Award 2009 (IDA). It was created out of a perceived need, derived from personal experiences. The design idea resulted as a solution for that need from playfulness, open-mindedness, and curiosity. My guidelines in the process were truthfulness, enjoyment of form, and an aversion to compromises.



"The MoROLL" is a seating concept for public, or larger private spaces. It can accommodate one, two, or many people, depending on its layout and version. The basic form of its profile is that of a spiral. The ground floor a two-seater occupies measures 1850 x 1850 mm; the loop is 1800 mm high at its peak. The length of the spiral is 6000 mm. As a one-seater, the spiral is cut short to a C-shaped profile. In a two-seater, people sit parallel, but opposite to each other. The layout for any side of the chair can be that of a rocking chair, of a lounge chair, or even flat as a divan bed. Any side can have its own function; two sides can have identical functions, or differ from each other. Only as a rocking chair, both sides need to be formed alike, to allow the rocking function. As an ongoing spiral, called "The MoSPIRAL", it can seat people in different ways, such as

sitting, lounging, and lying down. This version of the design was conceived for large public indoor venues, such as airport terminals, malls, and waiting areas.



“The MoROLL” is a design concept for seats in public and open spaces. It follows a simple design language, while addressing basic human needs for protection, safety, connectedness, and privacy. As a structure, it creates a private place within a public space, thus lending itself for wide-open, populated spaces such as airports, entrance halls, lobbies, high-ceiling structures, and any open-air location. It was developed as a concept for “future living spaces”, according to the requirements of IDA’s design competition. Although its functions were to be futuristic, its structure was not. Therefore, it was possible to actually produce one version of this multifunctional furniture concept.

The following quotes from renowned designers, who I admire and respect, describe my process and progress as a designer, and throughout the herein documented design process. “The thing that has always driven me as a designer is feeling pissed off by the shitty stuff around me and wanting to make it better”,¹ describes my own starting point of inspiration and motivation as a designer in many of my projects, as well as in this one. “Good design is created from a good mind”² is a mindset I am struggling towards, as I go through the metamorphosis of the timid and doubtful beginnings of an idea, through giving both idea, problem and solution effort and credibility, to finally committing with confidence to shape, look, and validity of my design.

For those who are about design as passionate and excited as I am!



¹ Marc Newson, Australian designer, 2009, *Never Use White Type on a Black Background*, p. 29, Amsterdam, BIS Publishers

² Ross Lovegrove, <http://en.red-dot.org/2747.html>, 29.09.2011

2 IDEA

2.1 My Inspiration

“I don’t solve problems, I create possibilities.”³ To see possibilities where there seem to be none, is the origin of any of my design quests. Design is an action for me, and approach to interact with the world around me. We all can see a need, have a desire to add or to improve. But to actually do something about it, and to positively create and add value to our lives, that means to design for me. Design requires my sensitivity, for the environment, which surrounds me as a designer, and for my role in it. I cannot create useful design without an acute awareness of the past, present and future of both the world and the people who live in it. I understand human-centered design as design from humans for humans, a perception of needs we all share. As a designer, I am sensitive for my own needs, and the needs of others by nature of my profession. To discover any needs, to perceive them as needs, and to acquire an understanding of what the nature of the need is and how it could be helped, requires observation, open-mindedness, reflection, and a desire and the courage to change the status quo.

³ Richard Hutton, Dutch Designer, 2009, *Never Use White Type on a Black Background*, p. 29, Amsterdam, BIS Publishers

Inspiration for “The MoROLL” came already at the beginning of my studies, in September 2007. Newly inspired by the possibilities of design, and excited about my future as a designer, I thought I could create great things, if I were just open to new possibilities. After all, I was studying design, thus I would have to take my talent seriously. I was playing with a flexible material, not pursuing any form or function, but wondering what could be designed with it. It was a piece of kitchen aluminum foil, which I had folded several times over into a band 30 mm wide, and about 300 mm long. Bending and reshaping it, I ended up with an oval-shaped bow representing the first loop of a spiral. I understood that I had sculpted a symmetric, holistic form. It was stable in itself, self-contained, yet open to both sides, and it could be continued or added on. As a spiral or helix, it produced a three-dimensional space.



I was more interested in the process of creativity, starting with inspiration and ideation, and then leading through mental and physical selective processes, before it would produce an actual result. I wanted to “play”, to entice inspiration to interact with me. I knew that I could not force inspiration, but could I animate

it? Would it be possible to inspire inspiration? I understood that I had to be open to it, that I had to have my “antennas” out. I would be receiving a solution for a problem, or a genuine design, rather than voluntarily and willfully producing it. I had received a solution, but I did not have the problem yet. “The problem contains the solution”.⁴

2.2 The Needs As I Perceived Them

Almost a year later, while on a summer vacation, the problem arrived, and Marc Newson’s quote rang true: “The thing that has always driven me as a designer is feeling pissed off by the shitty stuff around me and wanting to make it better.”⁵ I was sitting in an airport, waiting for the departure of my flight. Like all other passengers, I was required to be there at least two hours ahead of departure time, as it is suggested for security reasons, and in case of complications with boarding and luggage. As we all have to abide by the same rules, we are forced to spend a lot of downtime in such transient public places. We have to spend time waiting, sitting, reading, and even sleeping in public spaces, like in terminals of an airport. Although we all are afflicted by such inconvenience, if we do not belong to an affluent minority who can afford to fly first class, the provisions made for it are inadequate. Rarely are there enough seats, never are they comfortable. They are usually located in huge halls, without protective walls, or comforting surroundings such as lower ceilings,

⁴ Michael Bierut, designer, Scott Belsky, 2010, Making Ideas Happen, p. 88, New York, Penguin

⁵ Marc Newson, Australian Designer, 2009, Never Use White Type on a Black Background, p. 29, Amsterdam, BIS Publishers

warm air, silence, or privacy. Usually, the average flying customer is condemned to spend hours in drafty and noisy environments, sitting uncomfortably, unable to relax, or rest.

2.3 The Lack That Created The Need

Besides these basic and obvious needs not being met, there are other, more concealed, yet tangible needs right under the surface. We all are human beings. We might be citizens of different countries, but still belong to one world population. We can, although we might speak different languages, communicate with each other, and, given the opportunity, even might desire to do so. Recent studies in neurobiology confirm that every human being has social instincts of belonging and connecting with others. Charles Darwin⁶ made this realization already in 1872.

The usual accommodation for the average traveler, i.e. business class has another big disadvantage. Besides being exposed to the elements of air, noise, smell, and confinement of having to share a small space with a lot of strangers, it also does not allow for privacy or communication. Not only do we sit like chicken on a stick, next to each other, rubbing elbows with somebody we have never met before, and most likely will never meet again, we cannot even communicate with people we do know, even if we want to. We sit next to them, too close to turn sideways to speak to each other, and if seated opposite each

⁶ Joachim Bauer, 2011, Schmerzgrenze – Vom Ursprung Alltäglicher Und Globaler Gewalt, pp. 16 f., Munich, Karl Blessing Verlag

other, we are too far away to have a normal conversation, let alone an intimate talk.

On the other hand, first class passengers only recruit 10 percent of all airline travelers, while making for 30 percent of the revenue⁷. Yet, money cannot be the reason to ignore basic human needs. We all need to feel safe, and to be treated with dignity. Yet, most of our public spaces and public transportation systems remind us more of proceedings at a cattle drive, than the results of intelligent design. "Design addresses itself to the need"⁸.

2.4 Creating Value

The need that I perceived of myself, and of most of my fellow travelers, was the following: comfortable and inviting spaces, protection, safety; intimacy, closeness, and privacy when desired, and easily attainable communication when wanted or needed. A design was needed which worked both ways:

- For the privacy, protection, and safety of one individual, and
- For the desire to communicate and to share both space and experience between two or more individuals.

⁷ Article in the New York Times on Business Class Travel:
<http://www.nytimes.com/2010/06/02/business/global/02class.html>, 29.09.2011

⁸ Charles Eames, American designer, 2009, Never Use White Type on a Black Background, p. 134, Amsterdam, BIS Publishers

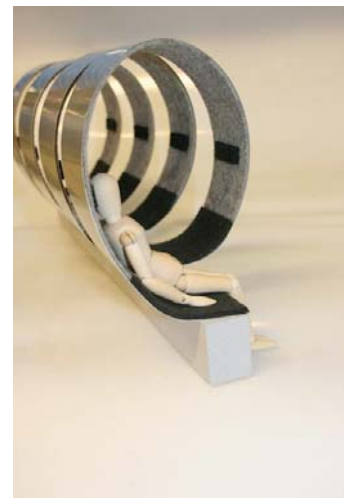
“Design is directed toward human beings. To design is to solve human problems by identifying them, examining alternate solutions to them, choosing and executing the best solution.”⁹ Human-centered design starts and ends with the human being in its center focus. If I as a designer am not centered emotionally, mentally, and spiritually as a human being, I will not lend myself easily to human-centered design. For that, a desire to improve our current living conditions, and a low tolerance for the status quo are prerequisites. To respect basic human needs, and to insist that conditions, environment, and circumstances be adjusted to meet those needs are my motivations in my design, thus making for human-centered design. If 30 percent of revenue is made with 10 percent of all customers, that still leaves 70 percent of revenue of 90 percent of the customers, whose needs and expenses have to be met with value.

2.5 The Design’s Innate Potential

After my studies had resumed in the fall of 2008, I picked up that design exercise from a year ago. When I was looking at that simple model which I had created out of a strip of aluminum foil, I saw and felt the possibilities of that design as a potential creation of space within a space. It would not require an addition or adjustment to the surrounding space. All it needed was actually space, which is abundantly available in public spaces like airports. It would even structure wide open spaces, be a focal point when there would be only

⁹ Ivan Chermayeff, 2009, British graphic designer, *Never Use White Type on a Black Background*, p. 29, Amsterdam, BIS Publishers

one, or it could be a room structure, when more than one would be dispersed within an open space. Another, immediately apparent option was to continue the form indefinitely, as a spiral, an ongoing helix, which could either go straight through one large room or open space, or wind itself like a snake, to brake rigid forms in architecture, or even guide people alongside into a certain direction.



3 IDEATION

3.1 The International Design Award 2009

To understand the development and importance of “The MoROLL”, it is helpful to know its early history, from a sketchy idea to a serious design concept. The contest for the International Design Award 2009 (IDA) was under the topic of “Future Living Spaces”. As a challenge, the organizer posted two different future living scenarios, both imagining life around the year 2020. “The Techie” was describing a young person living almost exclusively in a virtual world; almost everything seemed possible, as long as it could be imagined, and modeled with a computer. In the other scenario, “The Silver Business Generation”, an older person lived in a more realistic world, more modern than, but relative to the world, we are living in today¹⁰. As participant, I was required to choose one of them, design a future living space or an accessory for it, and justify my design choices based on the selected scenario.

Ideas were plenty, and both scenarios were attractive. The first step was to get familiar with both scenarios. Although I found it easy to come up with ideas for both, I was looking for details within a particular scenario I could identify with. I understood that my design process and my design thinking would be rooted in

¹⁰ Appendix 1

authenticity, rather than intellect. I had to be able to identify personally with the problem space at hand, to be able to come up with an adequate, authentic design. Otherwise, it would have been just a clever design. But I did not want to be smart; I wanted to be honest.

Although registration had started already in April, we, the design students at NKUAS, did not start to prepare our entries before September 2008. Registration for, and participation in this design competition was only possible with written consent of a design teacher. We had to rush to reach registration deadline. From then on, we were under time pressure to develop a design, and to produce a proper design proposal. Time that could be spent on the contest was limited, and had to be set aside in the evenings, or on weekends. Everyday school life went on, and other classes and tasks in school had to be attended, and to be taken care of as well. Submissions for the contest were to be printed on two DIN A2-sized boards, and to be sent by mail to Germany by February 15, 2009. In addition, an online submission was required, entailing a Curriculum Vitae, and detailed description of the design. Winners were to be announced by May 2009.

After several weeks of ideation and consideration, a choice had to be made. One of the ideas had to be selected for further development into a design concept. First, my rational mind wanted to choose the one I considered to be more likely to win. But then, it dawned on me that I had to be true to myself. Not only did I have to choose the scenario that would fit me best, but also a design which ultimately would fit the scenario. It was clear that I could not identify with,

nor satisfy the need of anybody living in a virtual world, the world of “The Techie”. What seemed desirable for many loses all human touch for me. Although I could not identify with the scenario of “The Silver Business Generation” completely, it still left enough room for human-centered design thinking. Both scenarios were elaborate and gave enough details, so every participant could find points to connect with, and use to stimulate ideation.

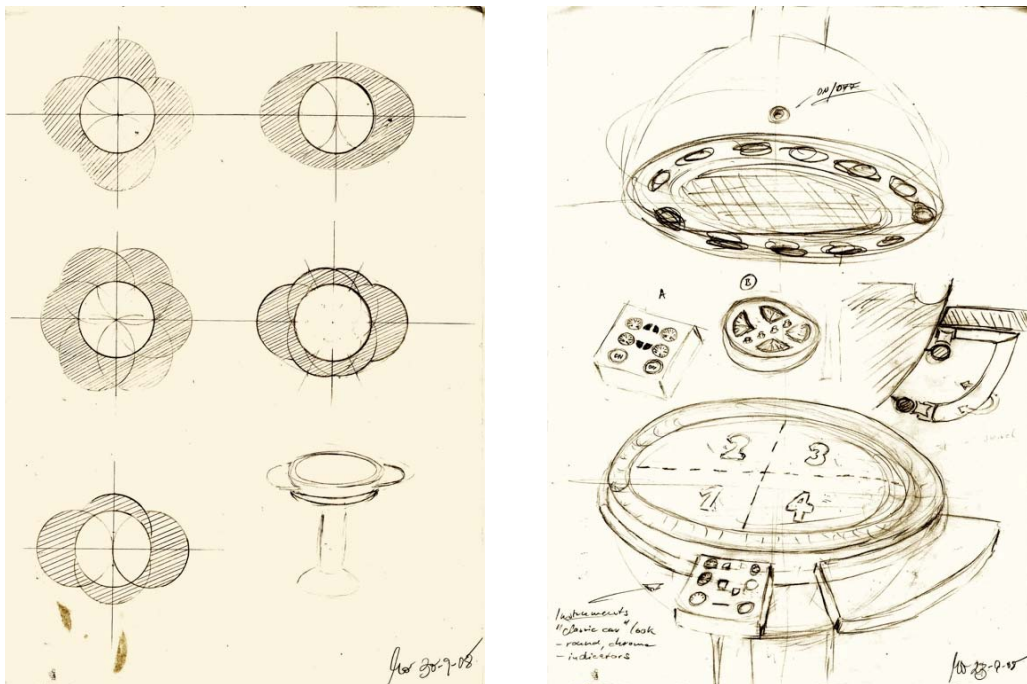
“The challenge is to create furniture, furniture functionality, functional surfaces or complete systems for living and working environments that would satisfy the wishes and needs of people featured in either of these stories. Project your ideas into designs for a kitchen or living space for the year 2020. The designs should take into account issues such as resource consumption, energy efficiency, wellness and health.”¹¹ This quote from IDA’s website prompted me at first to search for ideas in a totally different direction. Researching the sponsors via the Internet, I understood that REHAU¹² is a manufacturer of polymer surfaces, and HETTICH¹³ a producer of furniture fittings. Both fields of expertise meet when it comes to furnishing kitchens. Logically, I started my ideation with design concepts for kitchens, stoves, refrigerators, and cabinets.

¹¹ <http://ida09.hettich.input-nms.de/58.php>, 29.09.2011

¹² <http://www.rehau.com/>, 29.09.2011

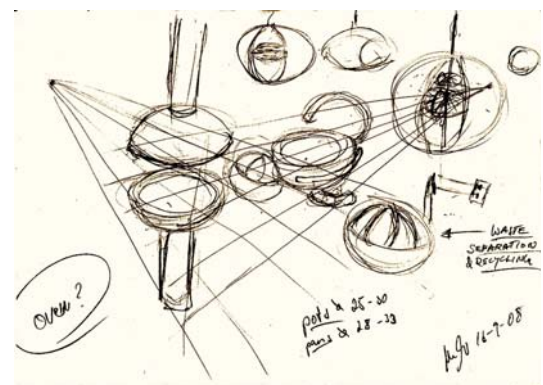
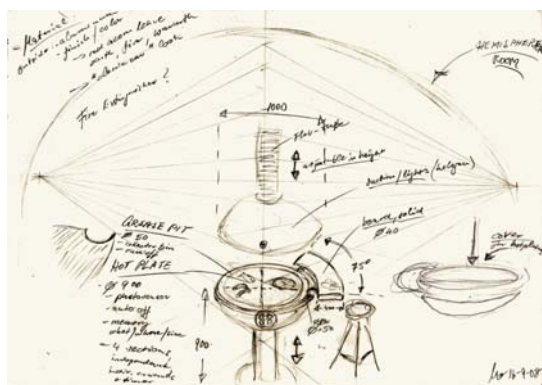
¹³ http://www.hettich.com/fi_FI/home.html, 29.09.2011

3.2 Ideation



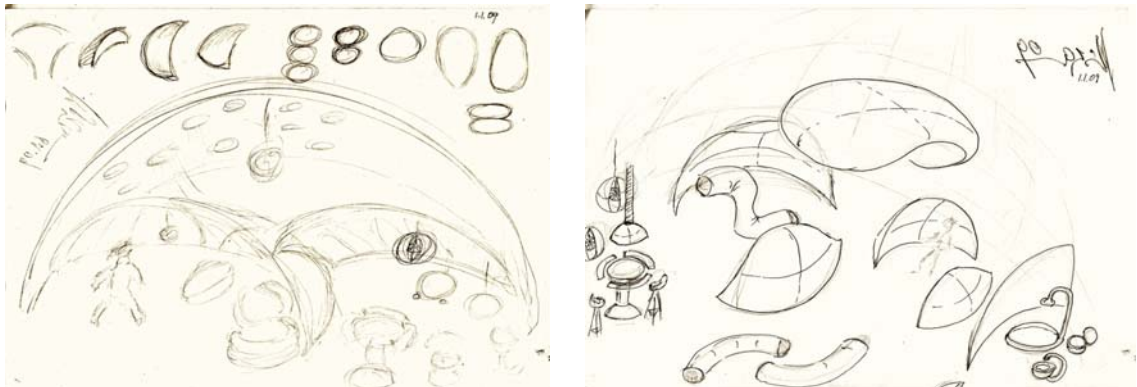
A particular idea for a stove made from hemispherical shapes led me to design a whole kitchen concept in a similar fashion, with cupboards, refrigerator, dishwasher, and even a garbage disposal. That in return led to a whole house shaped as a hemisphere, with a window and air-conditioning system. Although quite elaborate, futuristic and sophisticated, it was not gripping my enthusiasm. I was thinking too much and too hard, “designing” rather than conceiving. While feverishly sketching and modeling, I had constructed a model of a dome-

shaped living space. I wanted to imagine that human beings would not live in square boxes anymore in the year 2020. Constructing a different sphere for everyday living allowed me to leave everyday thinking. A model helped me to imagine the actual space more vividly, but it also brought my attention to the inherent high ceiling in my design concept. A high ceiling was desired when constructing a dome, but would not be desirable when living and sleeping in such a place. Although I was still working on a design different from the one that I would later submit, I already became aware of the need for comfort and protection in an open space with high ceilings. I realized that my design thinking was based on solving technical solution, so I started to focus away from just the kitchen. I concentrated more on the living room, and the general living area, to replace technical fancy with attention to basic human needs in a futuristic space.



Although the results were good and viable ideas, they were too constructed, too planned, and still too tame. I was looking for something more radical, a new approach to living. It had to include the possibility of an experience that can be

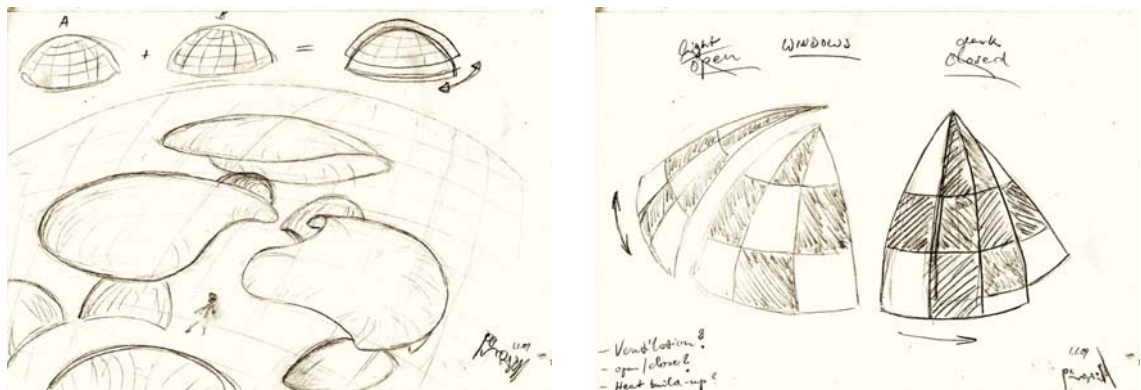
shared with others, coming from a need shared by others. It would have to be something everybody could relate to. I also wanted to enrich life, not just add a new “gadget”. “Togetherness” was what I was aiming for. The idea of the stove I was working on included the possibility of people sitting around it like people would congregate around a hearth, to share food, stories, and the experience of being together. I was including details into its design for a board, which would attach in parts on the outside of the circular surface of the stove. It could be used to prepare food, but also to accommodate guests, or assemble the members of the family to eat together.



That feeling, the quality of togetherness transcended into another idea for furniture, for a design supporting and encouraging being together. I wanted to emphasize the actual purpose stronger, not only to make it a feature on an otherwise technical device, but to make it the center of my design. A circular furniture system, made of three identical sections of a circle, a curved sofa with a high backrest, was the next design idea. Pushed together, these three sections would form a closed space within the room. It was a good idea, which

could also be explained and understood without having a whole house designed around it – but not good enough, not strong enough.

I used again aluminum foil, the same “rapid prototype printer”¹⁴ as I had used when playing around with when starting ideation on “The MoROLL”. It allowed me very quickly to tangibly visualize a 3-D model of my design idea. I prefer the size of my models to be 1:10, because it is very easy to visually relate, and to translate measurements from the model to the actual size, and vice versa.

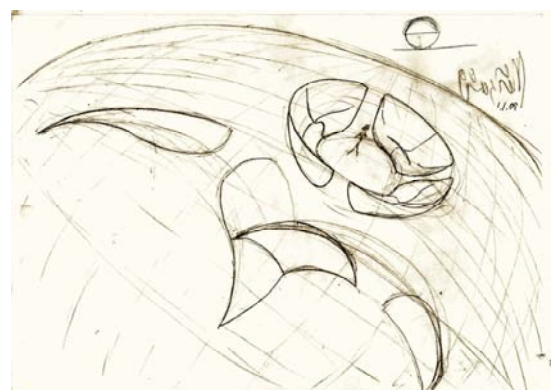
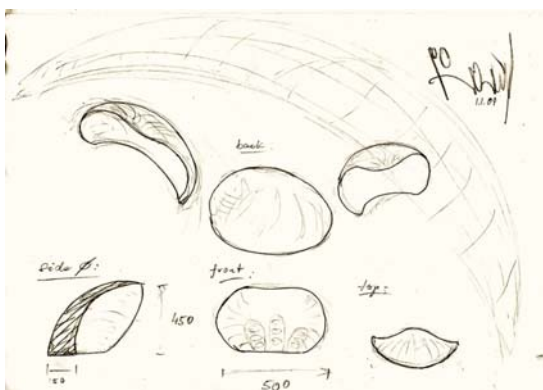


By early December, I had two separate, and quite different ideas, which I thought could be presented as a design concept. I felt strong about them, and was convinced that they both would fit my chosen user scenario of “The Silver Business Generation”. But I myself was not quite convinced that this was my

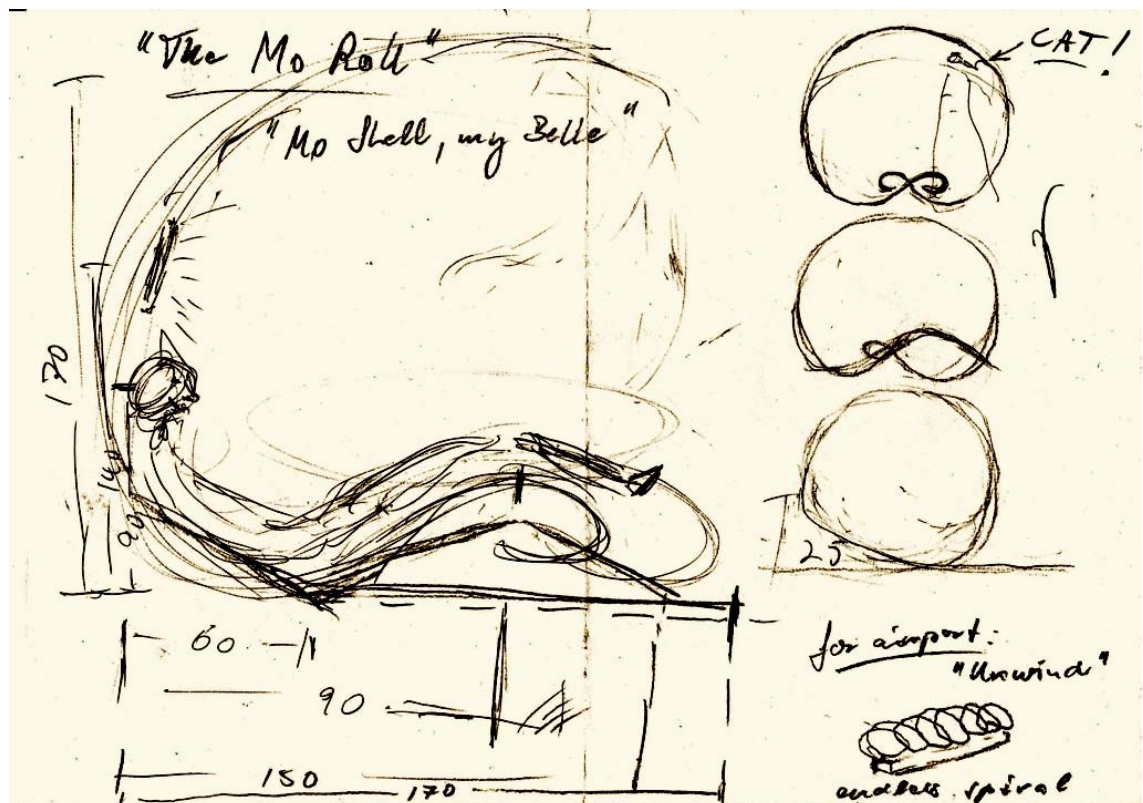
¹⁴ A prototype printer translates a computer-aided design (CAD) into a three-dimensional form with the help of a 3D printer. It requires a computer program, and a layering machine, which uses laser or injection molding. Because of its elaborative and costly technical requirements, I call my simple and primitive, yet effective, inexpensive and fast technique of molding a 3D model from household aluminum foil jokingly “rapid prototype printer”.

best shot. Although time was pressing, I took a break from ideation. I focused on school projects, and worked on other projects in the workshop. Getting my hands busy was a surefire way for me to get my head free, and my mind open.

To stay in the time schedule, I would have had to turn my sketches into professional renderings for my design proposal over the Christmas holidays. They would have had to look convincing, and to clarify the relationship between perceived need and design use. Yet, my resistance grew as I ran out of time - a familiar sign for me to check my motives and motivations. I had a strong feeling that I was playing it safe. But good design could not derive from compromise, be it because I ran out of time, or out of ideas. I knew I could do better. I still had to come up with something different than what I had. I asked myself which of my designs and ideas I felt the strongest about. The answer was clearly "The MoROLL". After weeks of developing other ideas, and with the deadline approaching fast, I made the bold, but risky decision to start over, and to prepare "The MoROLL" for entry into the contest.



With only two weeks to go, I had not yet developed the idea of the "MoROLL" past the original experiment with aluminum foil, and one simple model. I had to come up with an idea how to incorporate this simple design into a futuristic user scenario. A futuristic idea had to also look futuristic. I followed my own way of ideation, visualization, creation, and presentation. I interpreted futuristic as polished, shiny, extravagant, clean forms, and streamlined. To express such vision, I needed a stylish way of presenting my idea. By building models, I would visualize the idea, and using studio photography, I would set the scene for an impressive illustration of my design concept.

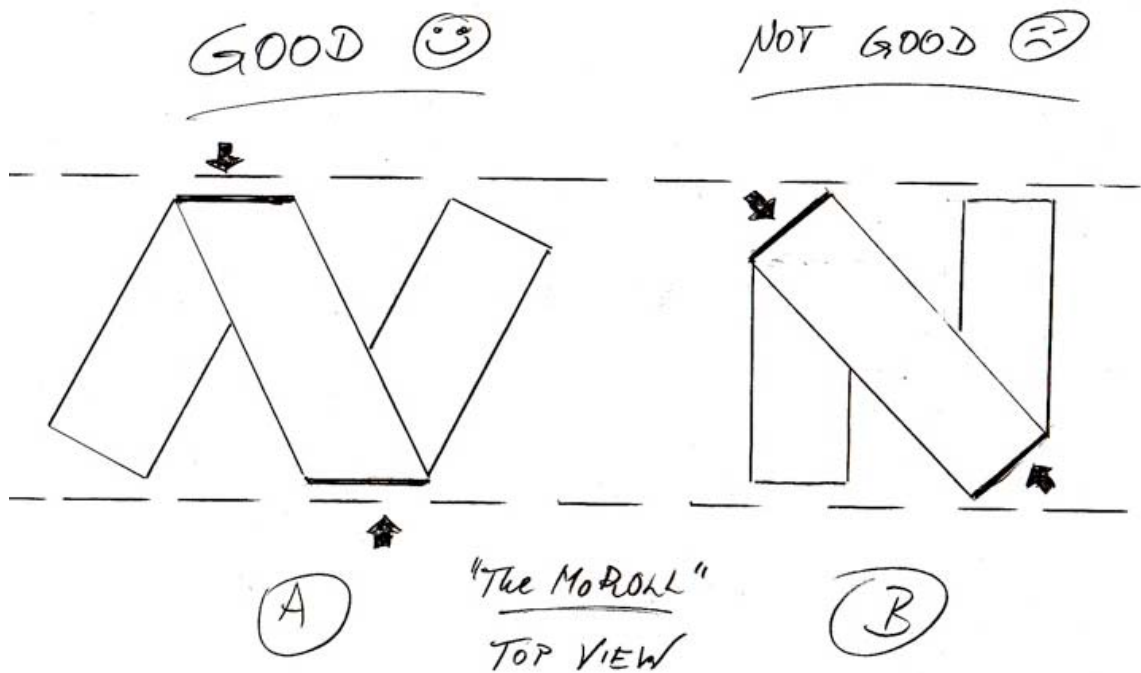


3.3 Idea Development

When developing the foregoing design ideas, I had built a model of the surrounding living space. That would help me to relate to the space outside of my design. Now, I wanted to develop a space within a space. I needed a model of a man, a mannequin with adequate proportions, to help me to relate to the inside of my design. I employed the help of a flexible wooden mannequin in a 1:10 scale. Such mannequin is normally used in art studies to study proportions and positions when painting or drawing. In addition, I shaped another one out of aluminum foil, which would adapt seamlessly into the contours of the roll. From the beginning of the design process, this helped me to relate the proportions of my design to the human body, and to transfer myself in my mind inside the model. I would be able to put myself in the mannequin's place.



That brought my attention to an unobvious feature intrinsic to this design, a phenomenon that was easily overlooked otherwise. It was impossible to detect in sketching, or even computer modeling. The outside walls of the spiral had to stay parallel to the direction the spiral was running, the vertical alignment had to be straight, not in an angle. If the walls would be parallel only onto each other, a spiral shape is still obtained. But the user would lean against an inclined outside wall, which would slope to the inside of “The MoROLL”. The user would not be able to sit straight, but his back would slide sideways. An important detail, which if not observed, would result not only in a different outcome of the layout and its measurements, but also would not allow the user to sit straight. When seated in a “wrongly” designed model, the mannequin would slide off to the inside. When I discussed the design with fellow designers, computer modelers, design teachers, and later with the manufacturer, this fact was overlooked. Even when I tried to explain the design problem with words and sketches on paper, it was not understood before seen with the mannequin sitting in the model. Often, I had to demonstrate this particular design problem on a “wrong” model, a model with its outsides not parallel, to make it obvious.



To effectively show the range of possibilities and flexibility of this design concept, I needed several models of "The MoROLL", each showing a different layout, position, and function. The concept idea was that of an intelligent, interactive, and self-adjusting sitting furniture. It would be able to adjust to different functions via voice command by the user, or through measuring the heartbeat of the user to know when to switch from a sitting to a sleeping position. This future scenario would make use of an intelligent and reactive

material, which could perform tasks projected onto furniture in a “future living space” of “The Silver Business Generation”.

To be able to show the complete design concept, I had to produce every single function as a separate model. In a virtual setting, this could have been done with one model. One 3-D computer-generated image could have been converted into its different functions. In my realistic modeling workshop, I preferred to build one model per one function. Producing a model over for several times, allowed me to refine the design. I became clear on form and line-management, its width, height and length. Because I had to cut it and form it by hand, I had to visualize clearly before I went to work. Once cut, it could not be changed, only replaced by yet another new version. To save time and material, thinking, visualizing, and planning ahead were mandatory.

During this modeling stage, I thought about what materials the actual furniture could be made of:

- How would I be able to repeat the design in reality?
- What kind of material could possibly enable the conceived-of functions?
- How could I possibly convey this back onto the model?

Here, the limits of choosing to build real models instead of 3-D virtuality became obvious. I could not choose from an endless library of visual images of surfaces, as it would have been possible in a computer-modeling program.

Choices that early in the design progress would influence not only the performance of the model, but also the later realization of the design. The quality and looks of the model's material had to reflect possibilities through its flexibility and neutrality. The qualities of the chosen materials had to allow for different functions, which could be assumed when looking at the model. A wooden surface, for example, would not have allowed to project flexibility, or an automatic adjustment, let alone self-illumination, or other imagined futuristic characteristics and functions.



The material chosen for the model had to be moldable with my hands, but rigid enough to keep its shape once formed. I had to be able to form the radius and gradient until the right form was reached. Machines and computers would have complicated and delayed that part of the process. Measurements were not

available, and prior data or experience did not exist on this new furniture. Materials for the model had to be cheap, available, and disposable, so I could experiment with them in the school's workshop, allow mistakes, and could repeat experiments until success. The material that lent itself ideally was a recycled offset printing plate, 0.5 mm in thickness, DIN A2 in size. One side was of semi-matte aluminum color; the other side had a white coating with print images, which I used for the inside of the model. I would use the aluminum surface for the outside, and glue 2 mm thick black felt on the inside, representing padding for the seat area on the model.

I cut the 420 x 600 mm aluminum plates in strips of 80 mm width with a hand-lever shearing machine. It was easy to cut. Next, I made a base plate from thin plywood, 8 mm thick, 200 x 300 mm in size, which I took from the workshop's waste wood container. With a hand-stapler, I attached one end to the base plate, and then formed with my hands a circle, the first loop of a spiral. I had to adjust its approximate radius and rising, relating its proportions in comparison with the 1:10-sized wooden mannequin. It gave me a good idea as to how steep the gradient, how much legroom, and how wide the distance between the two seats had to be. Also, the over-all length of the whole roll became apparent once the mannequin was used.

The moment I fixed the band of aluminum onto the base plate, problems of the design became visible. One was the angle of the backrest, as mentioned earlier. Not the bottom seats had to be parallel to each other, but the backrests opposite of each other. Another design problem was the profile of "The

MoROLL". I had assumed a circle as profile of my design, but the model showed immediately that a circle cannot be sat in comfortably; it would support neither legs nor back of the person sitting in it. It also would result in a lower ceiling of the loop, which would ultimately obstruct its accessibility. It had to be an ellipse, shaped like an egg upside down. The steepness of the backrest had to be almost upright, resulting in a very narrow turn on the bottom floor, and a much wider radius on the ceiling.

As I related the proportions of the model to the proportions of the mannequin, which were 1:10, I was able to relate its full-size measurements. The width of 80 mm in the 1:10 model, which would translate to 800 mm in a prototype, was a lucky assumption. But it stands until today, and proved to be the right dimension in both proportion and comfort. Too wide, and the spiral has to be built much wider in its horizontal projection, and it would lose its slim and light appearance, which is one of its design features. Too narrow, and it does not provide enough support for the sitting person's back and legs, as the user sits slightly diagonally. The spiral winds itself sideways underneath the users, who sit straight and parallel to each other.

After completing the shape of the first model, and fixing it onto the base plate, I had more confidence in the feasibility of the whole design concept. I proceeded to glue black felt with textile glue to the inside, to give it a more finished look.

3.4 Making Choices And Taking Risks

Doubt over the believability of my design concept for “The MoROLL” had me going back and forth between building models of “The MoROLL”, and drawing details of the stove for the kitchen concept. Ten days to deadline, and I still considered several design proposals. Although I felt strongest about “The MoROLL”, the circular sofa, and the concept for a complete line of kitchen furniture, especially the circular stove, were still in the back of my head as viable alternatives. The latter was very intricate, with many design and technical details. But they also had to be considered, developed, shown, and illustrated in a presentation. The reason I still considered it was that my mindset was still trying to please the jury. I speculated that with a design proposal for a kitchen, I would raise my chances of winning, knowing that one of the sponsors is a big kitchen manufacturer.

I had too many ideas for too many projects. I had to select, make choices, and make final decisions, not least for time reasons. To further any of these ideas to the point of conceptual and comprehensible presentation, I had to out-rule the many for the one that I would focus on. All of my design proposals were missing details, descriptions, and their final presentation at this point.

I took the risk against reason and decided against the kitchen concept completely, including the stove, which I had developed quite considerably, and threw also the idea for the circular sofa into the wind. Both concepts are still awaiting their own development for prototyping. I went with the idea which was

the least developed at that time, but which I felt the strongest about, “The MoROLL”. I was excited, curious, and ambitious about its development. These were good indicators and motivators to push the idea further. Its playfulness, and the simplicity of the models of “The MoROLL” allowed me to be flexible in my imagination, and to add to the potential of the idea in the presentation. Its versatility prompted me to use it for the design competition of the IDA. Once I had made that decision, I informed my design teacher, Jukka Niskanen, and my counselors for this project, Harri Tuononen and Tommi Silvan, about my change of direction. I had about 10 days left, until the final deadline.

Once that final decision was made, I was able to focus. I sifted out the main functions of the design concept, to understand which functions I needed to show in a presentation, and how I would show them. I decided to impress simplicity, clear language of form, and universality on my presentation, to stress the usability, user-friendliness, and purpose of my design. That meant that I needed several different models, precisely fabricated, and photographed in good studio lighting, using the same perspectives in all shots. I had to hurry up, stop doubting, and get to work.

After my experience with the first model, I understood and knew how to make the base model, which needed to be transformed into showing one different function per every new model I made. I fabricated four different models, first without the felt, only stapling the differently shaped aluminum rolls to their base plates. They all had to show the same measurements, gradients, radii, and profile.



I spent every day of the week in the school's workshop. After finishing the forms and proportions of all four models, I would glue felt on all models. Cleanliness and accuracy in that particular phase of the work process were important. The more fellow students and tutors looked with criticism, curiosity, and amusement at the simplicity of my models, the more I projected confidence and enthusiasm. But on the inside, I still had my doubts if I had made the right decision. At times, I second-guessed the idea of "The MoROLL", thought that it was too simple, too obvious, that the jury, or the future user would laugh at it.

With time running out, and a finished presentation still out of sight, I had serious doubts about the workings of my strategy. In between, whenever the pressure became too much, I flirted with my old design ideas, considering them for further development. Lack of guidance and support produced doubt and remorse for not sticking with the original idea. I rationalized that if I had stuck with one of the designs I had developed earlier, the sofa concept, or the kitchen design, I would have been finished by now. Ideation and presentation would have been worked out on the computer. I would have an easy time processing my application with the help of a graphic design application on the computer, like my fellow students. They received help, supervision, and tutoring from

older, more experienced students and graphic design teachers. But with building models, and photographing them, I was on my own. I had to take full responsibility for the outcome of my design and my presentation. As a student in the second year of his design studies, I did not feel too confident, and doubt, fear, and stress were plaguing me.

3.5 Trusting, And Moving On

Going back was not an option. I could not get myself to go back to my “old” ideas, the ones I had partly developed before, the stove and the kitchen, the half-dome house, the circular sofa. So I did what I knew how to do: I worked in the workshop, with my hands, and with the materials and tools available. I did not stop until I had a good result. I did the best I could. I started to trust that if I did try my best, the result would take care of itself. And so it did.

After finishing four different models, the studio photography had to show the functions of the design, and demonstrate the designs attributes and features. I had to visualize the concept behind my design. I set up the light table, a device that allows products placed on the table to be lit from the back and from below. It absorbs light from the front and the top, avoiding reflection of light into the camera. I set the studio lights, arranged for the position to the camera stand, and tested for a rather neutral lighting, with as few shadows as possible. Lights and camera positions had to be adjusted many times, test pictures reviewed on the computer screen. I was trying to shoot the photo as life-like as possible, to avoid a lot of computer work afterwards. Once I had pictures that represented

the design appropriately, I continued to use the adjustments made for all models.

I wanted to illustrate the whole concept of the design with these pictures, rather than particular details of one design. The more similar the photos in lighting, distance to the model, shadows, chosen frame, and position of the camera, the more convincing the different models of chairs would portray different positions of one chair which would change its functions and positions according to the user's wishes.

By the time I had all the pictures taken, the deadline was around the corner. I still had to produce a presentation, both online, and as a printout mounted on cardboard. As I had worked on my own for the last weeks, I had no guidance or supervision for this project anymore, and help was hard to come by. My fellow students were struggling with finishing up their presentation as well, and teachers were scarce.

I knew what to do with the photography, because I had plenty of experience, was familiar with the equipment, and knew what I wanted the outcome to look like and how I would get there. But, although I had a good idea for the layout of my presentation, I knew that I would need assistance to accomplish it. It all came down to the last weekend. The deadline to send the application by mail was Monday, February 9, 2009, 12:00 noon. Pictures had to be selected for and arranged in a graphic layout on the computer, using different programs to file, select, and process the hundreds of photos I had taken. After filing and

selecting the best suitable pictures, which would portray the feelings and functions I had in mind, I would process them. I cropped the selected pictures, and adjusted photographic qualities, like brightness, contrast, and white balance. Good pictures, but still far away from a layout.

After writing the text separately in a “Microsoft Word” program, I had to ask for help with the “Adobe InDesign” program. Because of the deadline, I was too nervous and anxious to make any progress. I was too tired to be able to follow any tutorials online, and I simply had no time left to see if I could manage on my own. Now, I was in desperate need for help. Frantic, stuck in the workflow, the deadline approaching, and with hardly a person present in the school building, I asked the one person sitting in the computer classroom. It was late Friday afternoon. Tuomas Martikainen, a graphic design student, agreed to help, although he was busy and in a hurry. Within minutes, he turned one of my photos into an attractive and persuasive impression of what my design could do. It became the front cover of my presentation. This little moment of success immediately alleviated all desperation and doubt. Faith in the eventual success of my design returned immediately. But more had to be done. He had other obligations, and could not stay any longer to help me.

I started to knock on doors, literally, hoping that some teachers would have stayed late at school on a Friday night. One more time, I had the fortune to find another person. Tommi Silvan, a tutor and designer, was still in his office. He was willing to help, and able to do so. He sat with me on the computer, and together, we started the layout of the second page. Although I saw how simple

and effortless it was for him to create a good graphic impression on a computer, I was unable to repeat the steps I was shown under the pressure that I was. I realized how important the outcome of this presentation was to me. I had put a lot of work into this design concept, and I wanted my presentation to reflect my design efforts. I asked for his continuous support and supervision until the presentation would be finished, printed out, and sent off. Luckily, he agreed, and we finished the presentation that night on the computer, and saved the printout for Monday morning.

On Monday morning, after a few minor adjustments in the text of the presentation, we printed out the two DIN A2 pages in color on photo paper, glued them on cardboard, and packaged it to be sent off by mail. Now I knew I did my best, which included asking for help. I asked, until I got help. I had received hands-on help from people who were willing to help. Without their help, I would not have been able to reach the deadline, and the design would not have seen the success, or the stages of development it obviously deserved, and which are still to come.

THE MO ROLL



It rocks.
It lounges.
It sleeps.
It is open.
It goes public.



It listens to you. Your voice commands control the rocking motions, the light, the volume of TV and PC.

It remembers you. Your voice activates your personal memory setting in the foam.

It warms you up, and cools you down. Sensitive sensors adjust the seat's temperature to your comfort.

It tugs you in. When your eyes are getting heavy and your heart rate slows down, it folds out the bed, lowers the music, and dims the lights.

It supports itself. Light sensors on its outside skin provide enough energy for all its functions.

It is flexible. It expands in length, width and height, or rolls up for easy storage and transport.

It multiplies. Next to another, they combine to a room within. In public spaces, an endless spiral helps to unwind. And its furniture family has many members...



Its sizes in centimeters:

Height = 180
Width = 250/ 80
Length = 250/ 150
Thickness = 6



4 DESIGN

4.1 Waiting And (Almost) Winning

Developing the concept of “The MoROLL” got me rolling as a designer. It got me into a creative flow. I started to take other ideas I had more seriously. I was interested in creating designs, which are sustainable through their many forms and functions, and human-centered in their origin and nature. I was bound to wait for the outcome of the competition, before I would attempt to produce a prototype myself, or approach producers. I wanted a jury to judge my design first, and I was hoping for a positive evaluation. Until then, I would wait with “The MoROLL”, and not pursue further development.

Working on “The MoROLL” gave me an understanding of the nature of a human-centered design concept, that it never leaves its origin, the human need of a human user. It considers and addresses basic needs, which are universally understood, non-specific, not specialized. If I stick to perceiving basic needs, instead of following personal whims or preferences, any user will understand my design language. That is what makes the design sustainable. Our basic needs do not change. Design that addresses basic needs successfully does not have to change either, provided that it is good design, and built to last. Good design means that it is well thought off and well executed, so the needs are met in a satisfactory manner, that it performs its intended function, and is of good

quality, so it has a long life. Although satisfaction can be subjective, and could be perceived quite differently by different users, the satisfaction of a basic human need can be achieved broadly, as long as the need is perceived correctly.

Immediately, I embarked on a new design project, a lighting design that would work in a public setting, like parks, or open spaces. Although it was a whole new design concept, my approach was similar to the one of “The MoROLL”. As much as I was waiting for the results of the competition, I was focused on this new project. I felt the need for continuation of my creative flow. I was in the workshop daily, and enjoyed the development of this new design concept. My newly developed lighting design was called “MENSCHenLICHTer”, a play with words derived from German language, “menschlich” being the German word for “human”, and “Lichter” meaning “lights”, ergo “human lights”.



Triggered by a similar intuition as in the development of the idea of “The MoROLL”, my motivation was a feeling of uneasiness in public places, caused by design that did not consider human needs. This design concept revolved around bringing light to the users of a public park, rather than lighting just the park. It uses human-like shapes as light sources. A central control device connects all the lights into one lighting experience. With its design development, I followed a similar path as I had previously done with “The MoROLL”. I built models first, 1:10 in proportion, and photographed them. Then I planned to build a prototype. With this design, prototyping would be much easier, as the resources of my school’s workshop could accommodate the size of the project.



In the meantime, I did not forget about “The MoROLL”, but I felt that at this point my hands were tied. I got increasingly concerned about copyright issues. I felt that I could not move on, and publish the idea, before protecting its copyright. Winning the contest or not, I felt still strong about the chair’s potential, and intended to produce it, sooner or later. I inquired about the legal aspects of copyright within the school’s periphery, but would not get any well-founded answers. I started to seek advice from outside sources. Free expert counseling was difficult to find, but I managed to attend a public legal clinic, which was held free of charge by a professional lawyer. Although I received some advice, the suggested solutions were too costly. Applying for a patent, or to register a trademark were viable solutions, but required funds I did not have at this point. I needed to look further, and decided to leave that subject until later.

On March 17, 2009, I received e-mail from Hettich, one of the competition’s sponsors, informing me that I had not won a price, but that the jury had liked my work. I had been selected as one of the best 25 participants of 1,600 students,

from over 30 different countries who had participated in the International Design Award 2009¹⁵. My exact ranking was 20th place. My first reaction was even a slight disappointment that I had not won, or had not placed under the first ten for some prize money. But I quickly realized what it actually meant to be on the shortlist of such a big, worldwide event, even more so, because the organizer of the award intended to publish a booklet, a printed documentation of the event. This would give documented proof that I would have to be taken seriously as a designer, and that my ideas were valid on the international market. My self-confidence rose considerably, as I felt validated from a neutral, unbiased environment outside of my familiar school surroundings.

4.2 Top 20! Now what?

My design teacher, Jukka Niskanen, congratulated me for the achievement, and so did the head office of our campus. But otherwise, the success went unnoticed, and without consequence. No suggestion was made as to how to continue, how to commercialize the success, or what to do after having received such recognition. Not that I needed more attention, but I understood that recognition and positive attention is the very bread of any artist, and designers are no exception. Design awards are the very measurement by which a designer's market value and significance is established. Participating is one thing, but getting recognized, short-listed, published, and winning awards and prizes are the currency of the job market of designers, the life-blood of any

¹⁵ http://www.hettich.com/blaetterkataloge/IDA-Doku_2009/en_DE/blaetterkatalog/, p. 50, 29.09.2011

resume and portfolio. But how would I profit from the success, how would or could I make it last? There would be another year with new design awards, and yet more noticed designers. If I would let my being placed among the top 20 design students in the world go unnoticed, the value of this achievement would fall towards zero soon and fast. But it seemed, that for the time being, I had to wait for the booklet. Nobody seemed to be impressed by the good news alone, maybe it needed printed proof. After all, seeing meant believing. Until then, I did not want to rest on my laurels, but to use the momentum to continue in the same direction, following my intuition, and trusting in my ideas.

My studies went on, and in addition to the mandatory course load, I continued to engage in several extra-curricular activities during the spring of 2009. I worked on several projects simultaneously, continuously challenging myself. Besides "MENSCHenLICHTer", I sought out several recycling projects. I perceived fewer limitations, and completely ignored the divisions of our school's departments. The whole campus became my playing field. I was a regular in all the workshops and studios, be it the departments of arts, textile or fashion design, photography or graphic design, or the metal and wood workshops. My boosted self-confidence helped me immensely in designating the continuation of my studies. I became more independent, and started to trust my choices. With placing in the top 20 of the IDA, I had proof that my intuition, my gut feeling was right, that I could rely on it, even if reason spoke against it, or the right outcome seemed out of reach.

Working on several new design concepts bridged the time spent waiting for the catalogue to be printed. I still had high hopes for its impact, and I was ready to embark on marketing “The MoROLL”. I was hoping to interest producers in manufacturing this design, but I felt that I needed the catalogue to impress my credibility on them. But even with my new ideas, I struggled with the developing them into products. Having an idea is nothing, as long as it does not result in publishing, in a release into a market¹⁶. I could not find any support, not within the school, nor anywhere else. I again worked all by myself. But now, I was confident of the outcome, and of all the steps in between, so I did not mind it that much anymore. I definitely had grown from the experience from the past months, its doubts and worries, its struggles and fears. Confidence and focus were the results. Before, I had doubts if design would be even the right choice for me as a profession. I was afraid to show my ideas to the public, in fear of criticism. I also did not know how to publish my ideas. But now, I had learned a lot, and I had overcome my fears, or at least some of them.

Despite the progress with my new projects, I felt incomplete with the future of “The MoROLL” still unsure. I had waited for almost two months without any further note from IDA. With the summer and its inactivities, vacations, and absences approaching, I grew more impatient. As their website did not show any news, I contacted them to inquire about the whereabouts of their promised catalogue. A short reply by IDA announced that I would be notified when the catalogue would be published. I was hoping to receive it before this year’s

¹⁶ “... just keep shipping. Shipping is when you release something.” Seth Godin, Scott Belsky, 2010, Making Ideas Happen, New York, Penguin

Habitare exhibition in Helsinki. Habitare is an international furniture and interior design fair, which takes place every year in the beginning of September. There, I was hoping to network as a designer, and to look for producers for “The MoROLL”, of course with the IDA catalogue in my hand. Little did I know that its publication was far away.



I did not stand still while waiting for news on IDA and “The MoROLL”. Throughout the summer, I kept freelancing as a photographer, but also was steadily working in the workshops at the school. I continued several projects,

even finalizing some of them. I was building a prototype of one model of the “MENSCHenLICHTer”. I kept the momentum of creativity and inspiration going. I personally benefited from this intermediate success through an increase in self-confidence. I felt validated as a designer, and I felt confirmed in the decision to follow my original ideas, and my instincts. My motivation to design and create was unbridled. Photography and design continued to employ me on location, in the studio, and in the workshops almost daily throughout the summer.

4.3 Habitare - The Year Before

With or without a printed publication of my design, life went on, and so did design. I registered for the Habitare Fair 2009 online as a visitor, downloaded their catalogue, and started to prepare for the forthcoming visit to the fair. I checked the registered exhibitors, and briefed myself by examining their websites.

Habitare is an international furniture and interior design fair in Helsinki, Finland. In 2009, the event lasted from September 7 until September 13. At that time, it still was a biennial event, which was to change from next year on to an annual event. It is the biggest event of its kind in Finland. NKUAS planned to attend, and had organized a day trip with the bus to Helsinki. I was eager to find and meet furniture producers who would fit the profile of my design, and could and would be up for the challenge of making a novel design of a new designer. I was hoping to be able to present the booklet documenting the IDA 2009, publishing my design. As the booklet was not available yet, there was nothing

left for me to do but to use words and my enthusiasm to convince promising producers of the appeal of my design, and my capability as a designer.

Badly organized, with 12 hours of traveling time, the time schedule allowed for only 3 hours visiting time at Habitare in Helsinki, before the bus would leave for its return to Joensuu. My motivation had to outperform disorganization. I was ready to conquer the design world, and if I had to do it in 3 hours, so be it. Although upset about this absurdity, I was determined to make the best of it. I systematically scanned the list of exhibitors for prospective producers, located them beforehand in the itinerary of the exhibition's program, and went to work.

Somehow, I managed to cover 58,000 m² of fairground in 3 hours time, while trying to find promising companies for producing my design.¹⁷ In the same time, I also had convincing and promising talks with as many company representatives as humanly possible. I had no promotional material to hand out, so I had to leave a lasting impression otherwise. I could barely investigate new and interesting exhibits of other designers. I had to stay focused on the task at hand, and that meant to select the companies I would contact by the impression they made when I ran by. If they were daring enough to produce and showcase new and different ideas, if they were "loud" enough, not conservative, but colorful, off the beaten path, then I would approach them. Other criteria I had for potential manufacturers were that they would make furniture from different materials, large in size, or even difficult to produce. That way, I was trying to

¹⁷ <http://web.finnexpo.fi/en/Yritys/HECC/Premises/Pages/default.aspx>, 29.09.2011

ensure that they would be up to the challenge of producing “The MoROLL”. Due to the frustration created by the tight schedule, I was highly motivated, focused, and decisive. You cannot keep a good man down, nor can you hold back a designer with a destiny.

Several companies looked interesting to me, and seemed fitting as producers. Some companies I did approach also proclaimed interest in my design concept. In most cases, I managed to talk to the persons in charge, if they present and unoccupied in the moment I ran in and out of their stand. The talks were friendly, broad-minded, and interesting, at times enthusiastic, and rarely remote. At this point, I was painfully aware of some un-professionalism on my behalf. I did not have business cards, nor a portfolio or a web site to show for. I did not have the time to be social, to engage in small talk, or to politely enjoy any of the refreshments offered. But still, I was determined to seize the moment, and to make the best of my current situation. I felt like I was at a speed-dating event, looking for my soul mate, and I had no time to suit up. It was not the best starting position, but a position nevertheless, and definitely the right event for me to be at.

First, I talked to Kimmo Knaapila, sales manager at Artek¹⁸, and responsible for contracts and wholesale operations. The designers Alvar and Aino Aalto, Maire Gullichsen, and Nils-Gustav Hahl founded Artek in 1935. It produces and sells their designs ever since. I wanted to find out how the biggest names in Finnish

¹⁸ <http://www.artek.fi/index.html>, 09.10.2011

furniture design recruit their talent, and if I would stand a chance to be on their roster. Needless to say that I had a hard time to be taken seriously, as I only could convince with my words, and my attitude. Of the impression I ultimately left them with, I cannot say, and only another, more professional attempt in the future can tell. But I sure hope it was a positive one. Most importantly, I started at the top, the company I revered the most, and which I was the most scared of talking to. If nothing else, I had overcome my biggest fear for the day. It was easier from hereon. Next on my list was Avarte¹⁹, which represents Yrjö Kukkapuro and Mikko Paakkanen, among others. I talked with Andreas Haufe, the managing director of Avarte, and with Mika Touko, their sales manager for Finland. Then there was Aero²⁰, producer, and seller of legendary Finnish furniture designs by Eero Aarnio and Imari Tapiovaara, among others.

As the time for departure approached fast, I had to press on, and collect inspirations and impressions as much the circumstances allowed. Magis Design²¹ from Italy was a must to approach, for their impressive portfolio, and big-name designers they have under contract. Martela²² is a Finnish giant in worldwide furniture production, with a special focus on public spaces, where I could see my own design “The MoROLL” in the future. Magaru²³ is a Japanese furniture producer, who presented Finnish designers Naoto Niidome and Nikko Paakkanen with furniture made from laminated and formed bamboo. Magaru

¹⁹ <http://www.avarte.fi/start/Avarte.html>, 09.10.2011

²⁰ <http://www.aerodesignfurniture.fi/eng/>, 09.10.2011

²¹ <http://www.magisdesign.com/#>, 09.10.2011

²² <http://www.martela.com/>, 09.10.2011

²³ <http://www.magaru.info>, 09.10.2011

had also started in 2006 to produce bamboo furniture designed by Artek. Habitek²⁴ presented fresh young Finnish design, and looked promising to me. At the Skanno²⁵ stand, I had an inspiring talk with their art director Anna-Katriina Tilli. Skanno showcased daring new experimental furniture and interior design, and I could envision my own designs in their portfolio.

At the end of the day, it seemed that I had managed to achieve what I had set out to do – to get experience in promoting myself, to get to know my future professional environment, some of my colleagues-to-be, and some of my competitors. I had experienced a cross section of the design market, some of its producers, buyers, and sellers. And it felt good! I felt like a fish in the pond. That environment did not threaten me, I felt right at home. I was convinced that I would have a fair chance in succeeding in being a designer.

4.4 Copyrights And Wrongs

The protection of my copyrights has been an issue throughout my artistic carrier, and, as most professionals attest, it cannot be taken serious enough. In my design education at NKUAS, this topic was painfully absent. Information was vague, contradictory, and based on hearsay. In more than one case we students were left in the believe that we did not have a copyright, or that by participating in a certain project we had “automatically” given up our intellectual property rights (IP rights) to either the school, or the client we were working for.

²⁴ <http://www.habitek.fi/>, 09.10.2011

²⁵ <http://www.skanno.fi/>, 09.10.2011

So it came to no wonders that, when I was ready to “conquer the world” with my designs, I was insecure, apprehensive, and unprepared. Only later would I find out that as a creator, I own the products of my intellect, and there are rights to protect them.²⁶

In the European Union, creative works and their appendant intellectual rights are protected and owned for the first three years after publishing under a creative commons, the European copyright laws. The creator owns the IP rights to his design as “unregistered Community design”.²⁷ During and after the first three years, a “registered Community design” offers uncomplicated and inexpensive protection of intellectual property within the region of the European Union, and several additional participating countries.²⁸ To be able to work as a professional designer, the knowledge about how to protect one’s intellectual property is essential. If there is no intellectual property owned, the design has no market value; therefore, the designer cannot ask any money for his or her work. Misinformation, or the absence of right information, leads to misunderstanding, which ends in negligence and misbelief. Careless exposure of a novel design to the public through premature publishing might not only jeopardize the designer’s copyright, but will also spoil the chance for a patent application.

²⁶ Appendix 6, <http://www.prh.fi/en/mallioikeudet/yleista.html>, 01.12.2011

²⁷ <http://oami.europa.eu/ows/rw/pages/RCD/protection/protection.en.do>, 01.12.2011

²⁸ <http://oami.europa.eu/ows/rw/pages/RCD/protection/theRCD.en.do>, 01.12.2011

Misinformation and misconduct caused not only insecurity on my behalf, but also on behalf of potential producers I would approach. As professionals themselves, they were trying to protect their stakes by investigating the copyright status of my proposal. To protect their own rights, producers wanted to make sure they excluded the possibility of any copyright infringements. In the beginning of my involvement with the professional design community, I would ask potential stakeholders to sign non-disclosure agreements, prohibiting the undersigned to disclose any information about the proposal to third parties. Although it seemed to be commonly understood, it was not always common practice. It created a foundation of mistrust for a possibly new business relationship. At times, that practice created discomfort, or deterred potential producers, although it showed a sense of professionalism.

Fear, that any of my ideas, designs, concepts, or my copyrights to them could be stolen, was the ultimate Jailer, keeping me locked up, holding me back from sharing my ideas. I was a prisoner of my own superstition. I was afraid that anybody who I would show my designs to would be able to copy my ideas, and would do so. I thought, if I would be showing an idea to a producer I deemed interesting, that he would be interested in copying it. It would have been my own fault if he did, and there would be nothing I could do about it after I had disclosed my designs. I thought that by disclosing my ideas to another person, I would disclose my rights, giving them permission to use them as they pleased. If I would show my proposals to a company, I would stand an even lesser chance to claim my copyrights. As a private person, I would not stand a chance

against a company, which is a legal form. And surely, this was how I believed the professional world to be.²⁹

This misbelief inhibited me to a great extent. I was hesitant to show my designs to potentially interested producers. I also was not investigating how to produce and sell a product myself, as I assumed that I would not be able to protect my copyrights, and, once published and on the market, anybody who sees the product could copy it freely. This belief, as naïve as it might seem, slowed me down in the pursuit of my design career. I was not even confident to discuss solutions of building a prototype around school for the fear of my idea could be copied. I was scared to contact anybody who would be able to produce it, even companies who were only remotely related to my design. I reasoned that if I had a good idea, the idea would be simple, and a simple idea would be easy to copy. I was a victim of my superficial knowledge, a prisoner of my own wrongful beliefs. That was one of the main reasons why I was waiting and hoping for the publication of the printed version of the IDA catalogue. With that hand, I was not only hoping to add to my believability, but also that it would make it safer for me to approach a company, that it would protect my idea from copyright theft. That was why I procrastinated the publication of “The MoROLL” until the publication of the IDA catalogue. Without it, I did not dare to look for producers on my own account. I assumed that an approach of a company in the professional and official setting of an acknowledged trade fair like Habitare would give me some

²⁹ My beliefs were not far from reality, as many copyright lawsuits filed by the Dutch designer Marcel Wanders show. The good news is, that he seems to win many of them. 2009, Never Use White Type on a Black Background, p. 11, Amsterdam, BIS Publishers

safety towards the protection of my design. An unsolicited approach online, or on the phone without seeing or meeting the opponent seemed too risky, and out of the question. Thus, I believed my hands were tied, and I had to improvise to the point that I thought it smarter to talk about the idea, to explain with words, than to actually show drawings, models, or photos of the idea or the development. I thought that if somebody does not have a concrete visual description, that person would not be able to copy it. At that time, I did not understand IP laws. I did not really foresee a production of “The MoROLL”, although I was hoping to meet an honest producer, who would be excited about my design. Later I learned that wishful thinking does not produce results, but research, information, persistence, and action do.

By late 2009, I had given my attention to other projects. I did not know how to build a prototype of the size and make of “The MoROLL” without support. I needed technical advice, help with 3-D modeling, and financial support. I did not know how to fund my own projects, nor where and how to ask for it. I approached the resources I had at my disposal, teachers, classmates, and professionals on the trusted periphery of NKUAS, but to no avail. The project seemed to be too big, too costly, too impossible to make, and ultimately, it was over and above any responsibility anybody wanted or could handle. I was too inhibited by the lack of support and knowledge to advertise it on the worldwide market of ideas myself. Frustrated and disillusioned, I had put this project on hold, and did not expect a revival anytime soon.

And then everything changed in one day! Just before the Christmas holidays, the print catalogue arrived. Not that the layout or content was any different than the already available, publicized and known online version, but the reaction to it sure was. The print version made even on me a new and profound impression, although I had looked at, bookmarked, and forwarded the link of the virtual online-version of the catalogue³⁰ many times. Proudly did I show it around school, and offered several copies to people who had helped and supported me in the past, and knew about my struggles. Reactions from teachers, staff, and students were throughout positive, and acknowledging the success. At the same time, the reaction this time was as real as the catalogue, whereas when I spread the good news in March 2009 about being short listed in the Top 20 of the International Design Award, the reaction was retained, as to short-lived good news for today, which would be gone and forgotten by tomorrow. And it obviously was so, that people had forgotten. Then, it was a virtual event, promoted via virtual media. This time, it was a real 64-page catalogue, soft-cover bound, printed in color, with photos of my design and me on page 36.

4.5 The Real Deal

The biggest impact it had was on the school's head office. The impression it made there was one of awe and pride, that a student from a small design school like ours could place himself in the top ranks of design students worldwide. When I submitted a copy of the catalogue to the principal's office, the school's director spontaneously suggested to present "The MoROLL" at the

³⁰ http://www.hettich.com/blaetterkataloge/IDA-Doku_2009/en_DE/blaetterkatalog/, 12.10.2011

next trade fair Habitat 67 in September 2010. At first, I did not understand the meaning of what he had said, and it took a moment to sink in. But then I jumped at this opportunity like a dying man seizes a cup of water after a long, dry walk through the desert. That day I left his office feeling like a real designer, not only with an award to my name, and not only with a great idea on paper, but with an opportunity to bring this idea to life, to actually be able to make a real, functioning, life-sized prototype. I had a deal in my pocket to realize one of my designs. Now we were talking business about design! Now I had to make the deal real.

5 DEVELOPMENT

5.1 Committed Or Not, That Was The Question

To make the deal real, I had to have a written confirmation about my agreement with the school's principal. I had to have the commitments of all parties involved on paper. I was convinced that I could and would get a functioning prototype built and ready to present at an international furniture fair within the set time limits. I was willing to sacrifice as much time and effort as necessary, and money as little as I had. I did not mean to ask anybody else to get involved if they did not want to, nor to make any sacrifices that they are not willing to make. But I was not willing to accept fickleness or levity of others as a reason for failure to deliver. Failure was not an option, neither was giving up. I had to look for like-minded cooperators.

I was aware of my powerlessness over people and circumstance, but I was aware of the power of conviction and commitment as well. That was what I was looking for in cooperators and supporters. If they had it, if they were committed to their part in the work, they could and would be helpful, if they did not have it, they were and would not. I had to make sure that once I would deliver, that the school would be still committed to exhibit my prototype, and not would have forgotten about it, or had made promises to other designers as well. As this was a big project, not only for me, but also for the school, I had to secure the scarce

resources of space, time, and money set aside for my project. I confirmed my agreement in an e-mail to the school's principal.

Right after the holidays, in the beginning of 2010, I asked the principal's office of NKUAS for a budget, a person in charge, and help from the staff. I needed the confirmation of our agreement as an authorization to get started, to mobilize resources, and the involvement of others, be it students, teachers, or outside companies. The general resources available to a student were not sufficient for that project. The project was by design, through its size and its requirements in materials and production techniques beyond the scope and expertise of our school. For the expertise on proven possibilities and new alternatives for materials and production, I had to consider outside sources. Within the school, my own expertise, research, and knowledge of the project exceeded the status quo. There were many unknown variables in building the prototype of "The MoROLL", and it seemed that I had to venture on new grounds. To my knowledge, it has not been done before; it was a novelty design. To build it close to my original design, available, established and proven materials were required. To find new materials not commonly used in furniture design as an alternative, I needed the trusted expertise and experience of professionals.

Was it oversight or retreat, but I had not received a reply from NKUAS to my inquiry for several weeks, despite a number of reminders. I feared for my project or me not being taken seriously enough to have the possibility to execute it on a professional and dignified level. By mid-February 2010, I started to take matters in my own hands. Without waiting for an authorization that might never come, I

investigated on my own, interviewing able teachers and experts, asking information on materials and production methods. I surveyed opinions about how they would go about realizing a project of such matter. I interviewed experts on materials, statics and stability, technical specifications, and suggestions on how to improve the original idea. Anything but to sit and wait! Any information, expertise, hints, or tips were welcome to move the project in small steps closer to realization. I did as much as I could out of my own resources to find a solution for the main question everything in this project seemed to start and end with: How to make “The MoROLL”, and out of which material? If I would be able to find the right material, I would know how to produce it. If I would find a suitable production process and production facility, I would be able to determine the material. I was thinking in circles, but it had the advantage that the problem and its solution became redefined and refined.

I was not particularly set on one kind of material or production method, but I needed a beginning, a start of the actual project that I would bring about. I was willing to look into all sorts of different kind of materials, and consider various production methods. I was hoping to produce a prototype of “The MoROLL” close to a later production type. That meant that it had to be fully functioning, and show all the desired aesthetics, features and fixtures, covers and colors. Most importantly, it had to be able to perform in every day use. Breaking, shaking, discomfort, compromises, or unprofessional looks were not to be tolerated. If something would not work or last, I would replace it with something

better. Learning from my mistakes was my intention. “Ever tried. Ever failed. No matter. Try again. Fail again. Fail better.”³¹

During the process of making the prototype, my main goal was to learn about the mistakes in my design, and from the mistakes I made in designing. I wanted to learn where I had thought wrong, overlooked important details, or where I had ignored basic principles of design, material, and physics. Learning, and allowing improvement of my design, and me as a designer, would result in a better product. Nobody within reach had any answers or solutions for how to produce “The MoROLL”, I had to do and learn by myself. That would not be easy, and it would need time. Without any guidance, I had to see the project through myself, from the beginning to the end. I had to make every mistake by myself, with nobody to blame, and nobody to share the responsibility with. Under these circumstances, waiting for a reply to an e-mail for several weeks, and not getting an answer, was unacceptable. I had neither time, nor patience for getting stalled, or getting the runaround. I had to take action. Do not wait, do!

With my newfound strength and resolution, I was aiming to manufacture a prototype of “The MoROLL”, being fully functional, and looking factory-made when finished. In its design, there should be no frame, and it should be made out of one piece. Which of the originally suggested four different layouts I would choose, I was not sure of yet. Before I would be able to make any decisions, I would have to ask for advice. I contacted specialists and experts on design and

³¹ Samuel Becket, Irish poet and writer, 2009, *Never Use White Type on a Black Background*, Amsterdam, BIS Publishers

technology. I was ready to listen and learn from their experience. Luckily, I found some of them close by, who were willing to share their knowledge on materials, production techniques, and design wisdom.

5.2 Relinquish And Research

My first professional discourse about the design of “The MoROLL”, and how to make it, was with my design teacher. He has seen me work on the models since 2007, and has been curious about the progress ever since. Since then, we would discuss different possibilities of materials, their qualities, strengths, and weaknesses. Although the very first model was a simple form study made from aluminum, I originally envisioned the design made from laminated wood veneer, or from cross-layered veneers of bamboo. The subsequent models were made more exact to the proportions of 1:10, but they still were made from thin sheets of aluminum. I used recycled offset print plates made from aluminum. They were readily available in the printmaking classroom of our school’s art department. They were easy to work with, to form and bend into the right curvature and warping. The sheets’ thickness of 0.5 mm was thick and stiff enough to keep the shape.

The design discussions I had with experts, teachers, and students about “The MoROLL” would consider the design process from these different yet dependant angles:

- How could the design be done, and what could the material be?

- How would the design change, if the material would be different?
- What part of the construction has to be carried by the material, or even is the material?
- How much can be taken away from the construction, and how much of it is design?
- How much of the construction can be substituted, how, and with what?
- How much of the design can be substituted, how, and with what?

Although the material a design is made of affects the design process from the start, and has a major impact on the finished product, I did not want to start the design process with the material, and subjugate the design itself to the choice in material. I was insisting on the design as it was, trying to find a construction material that would support it. If there was a design flaw, I wanted to correct it in the design, and not help it, or cover it up, with the properties of the material.

I wanted the material, and the subsequent production process, to be the outcome of a natural choice, which was made because the material can do what the design needs it to do. In this design case, the material used for construction was to result subsequently from the design's form and function. Although "The MoROLL" was considered to be a good design idea, I was still searching for what was wrong with my design, for where the problems were in it, the challenges. Failing meant improving, and to fail (read: to improve), I had to make mistakes. And I was convinced that I had made mistakes somewhere in the design process between ideation, design thinking, and design development. I just could not see them yet. Thus, I needed others to reveal

them to me. Only through allowing others to point out mistakes in my design, could I grow into designing and making a good product. Only through failing could I improve, and become a better designer. I wanted and needed suggestions, hoping they would open my horizon, and point me in the right direction. I also needed help, not only with the development of the design, but also with the manufacture of it. To think that I could do it all by myself would have been foolish. Doing it all by myself would have only served my pride, not the project. I was aiming for the best possible outcome, and that had to involve knowledge, skills, and expertise better than mine. After all, I was still a student, and I wanted to learn. And to learn, I needed somebody to teach me.

Timo Pakarinen, innovator and design teacher at NKUAS, suggested to consider producing “The MoROLL” from light plywood, as it was used in airplane construction. Being in Joensuu would allow easy access to the wood industry, for wood being the main economic factor in North Karelia. Utilizing their plywood and veneer products would get them interested in innovative product development. He suggested looking into UPM³². He also mentioned Harri Koskinen³³, an internationally renowned Finnish designer, who creates wooden furniture using plywood and veneers. I followed his suggestion, but put it aside, as veneer construction would primarily require the construction of a mold, which in turn would need a prototype, or at least a full-sized model to recreate it after.

³² <http://w3.upm-kymmene.com/upm/internet/wisaplywood.nsf/sp?open&cid=homeENG>, 21.09.2011

³³ <http://www.harrikoskinen.com/>, 17.08.2011

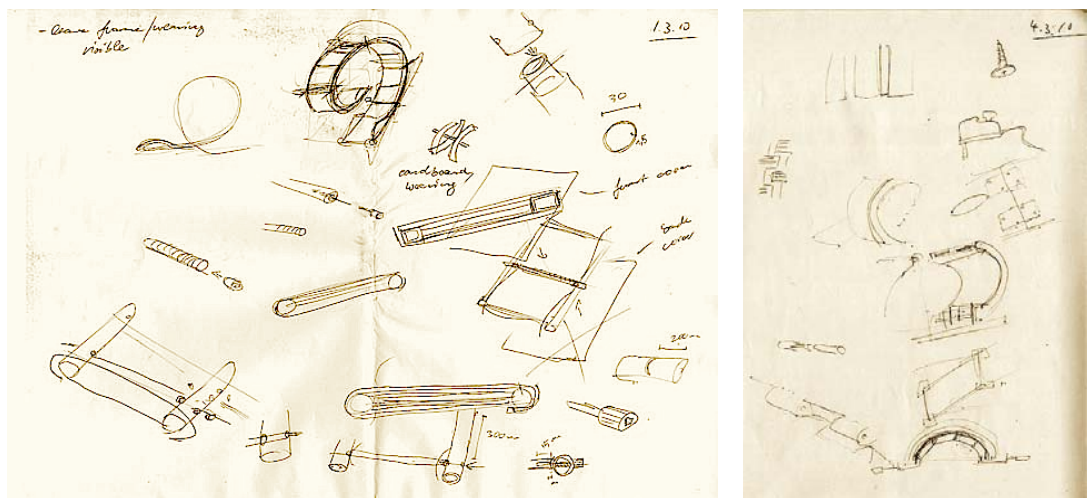
I preferred practical expertise to theoretical knowledge to start my research. Instead of investigating books or the Internet, I interviewed experts. I wanted to know of hands-on experiences from people who knew what they were doing. I did not tell them how I would like to do it, but asked them how they would approach a design like "The MoROLL". I approached almost everybody I knew from my past two years at NKUAS, people who had made an impression on me with their integrity, their commitment in their work, and their expertise within their fields of work. I was looking for people with fresh ideas, who had left a mark of craftsmanship, of work ethics, or of simple reliability and friendliness. I told them about my project, my problems, and my dilemma. I asked them if they had an idea, their time, or their talent to contribute. If they denied, I asked them if they knew somebody who did. If they could only offer good wishes, I would thankfully take those. I was already on a mission, I would not take "No, this cannot be done!" for an answer. My mission was to get "The MoROLL" functioning and ready to present by September 2010. I knew I could not do it alone, but I was determined to find support. And if I had to find money to finance expert services, I would find a sponsor.

NKUAS has several locations around the city of Joensuu. The campus I went to housed the departments of design, graphic design, textile and fashion design, the arts, and business. Neither size nor make of "The MoROLL" were within the scope of the studies or workshops available, or within the curriculum of any of these studies. I have not experienced that separate departments of NKUAS would work together, and it seemed, neither would I do so with this project. But

the fact that I had gone beyond what my environment could accommodate, should not keep me from extending my creativity. I had not come all this way to be told what and why something cannot be done, quite the opposite. That something has not been done before is the nature of the novelty of design. To accomplish something that was thought of impossible, including by me was the experience I was seeking, and excited about.

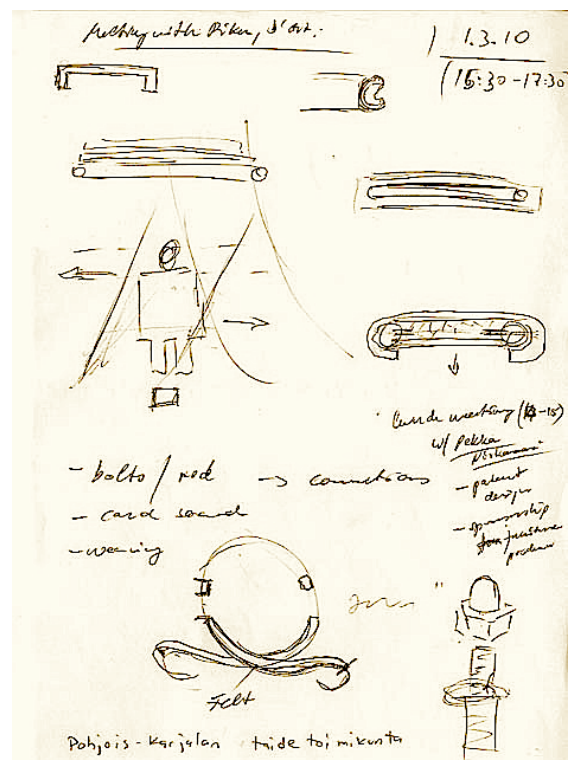
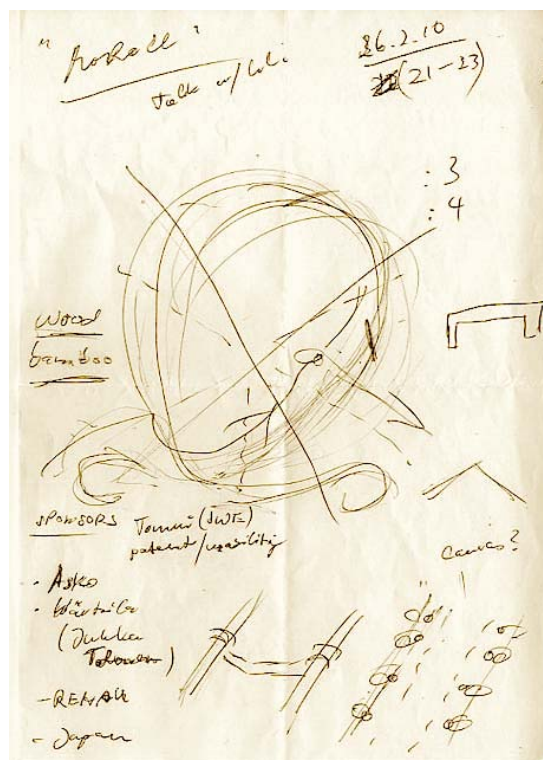
5.3 Hard Facts And Soft Factors

There was plenty of research to be done. Options on how to actually produce “The MoROLL” were still wide open. The production process would depend on the material used. Until the right material was found, it was unclear if the design had to be changed, or if it was even possible to be produced in that shape. But for now, I held onto the general shape, a freestanding, spiral-shaped loop with opposite endings to the floor. Although this was not up for discussion at that moment, openness and willingness to change were required. It would not necessarily have to be made out of one piece. Early in the design stages, I did give this issue a lot of thought. I had several ideas of how to interlock two C-shaped halves into one loop, but I did not arrive at a conclusion. I felt strong about the design itself, its shape, function, and purpose. It did not need any extra features, fixings, or gadgets unless absolutely necessary. Anything extra would spoil the clarity of its message. I wanted to build it very simple, and that meant out of one piece, if possible. Only if it would advance the design, I was willing to consider making “The MoROLL” out of several pieces.



The biggest challenge in the realization of “The MoROLL” as a functioning life-sized prototype at this point remained finding the means to shape the complete arch of the loop. The model showed that the part where the two seats connected is not only its main design feature, but also its weakest link. A connection of two C-shaped halves at the top would have required a strong connection, and for the bottom parts of the halves to be completely rigid. That would have required stability without jeopardizing the design. To design “The MoROLL” out of two identically halves, and to connect them in the weakest spot did not seem to be an option. The parts for the seats and the leg-rests could have been added, and pieced together, but not the loop. It seemed that the loop had to be made out of one piece. But to manufacture one piece of furniture that size out of veneer, fiberglass, or metal exceeded the capacity of the school’s workshop by far, and also that of most furniture producers.

In the design discussion over piecing “The MoROLL” together, options of adding a frame came up. I considered a frame consisting of metal tubing. A ladder-type construction would have been needed to keep the sides parallel, and the surface of “The MoROLL” perpendicular to the ground. Its construction had to consider weight of two adults, plus its own weight. Considering the average weight of two adults sitting across from each other, and getting in and out of the chair simultaneously or successively, the design had to make sure that the chair is not coiling, vibrating, or otherwise unstable. The absorption of torque from the spiral shape design became a problem. Stability was a major concern, and so was the chair’s weight. Metal tubing would have added a considerable amount of weight to the design, and also thickness. More weight in the construction itself requires more stability, and more and thicker material. While considering the metal tubing, I thought to not cover the frame, but to show it as the chair itself. The seat could have been heavy linen cloth, stretched with heavy rope between the side rails. Although only a prototype, I already did not like its massive and heavy appearance. I was trying to hold on to a lightweight design, with a thin and transparent finish. I had designed the chair without a frame. The material had to be such to make a frame expandable. The chair would be its frame.

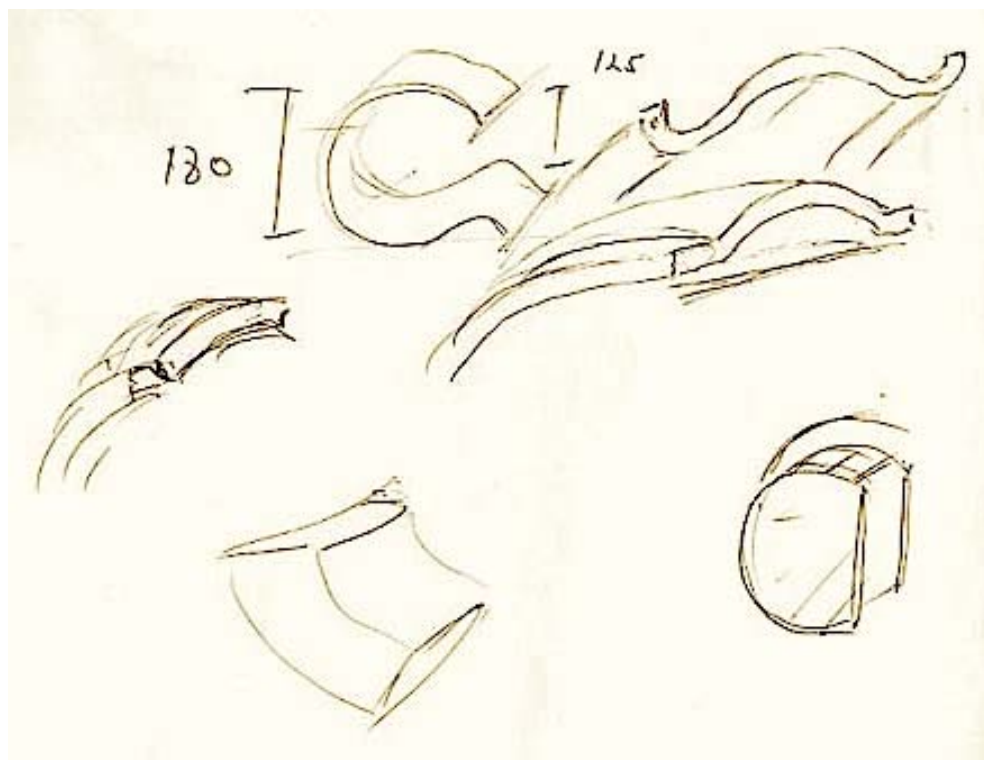


I used the factors of cost and time to select options. I began to single out solutions that were too elaborate, costly, or time-consuming. As everything was theoretically still possible, I had to start ruling out some options to arrive at feasible and practicable results. Ultimately, the ends would justify the means. But if the considered ends embodied a compromise to begin with, I would not deem extraordinary means worthy of achieving a second-rate result. I adhered to a balance between justifiable means and desirable results in my decisions. The metal frame could have been made from aluminum, which would have alleviated the weight problem. But material and production costs were estimated too high, and the outcome would have still been a compromise. So

far, all the possible solutions I had come up with were neither ideal, nor feasible. The searching part of my research had just begun.

Six weeks into the project, I had not heard any news of support from within NKUAS. I resigned myself to a project without budget, leaving me with having to find voluntary support and complimentary contributions. I continued with my approach of experts within the school's boundaries, trying to get them involved. As a project manager, I tried to win over Riku Rantala, a former fellow student. He agreed to help, but with his working hours not authorized for my case, he was not able or willing to work with me. He was not the only staff member of NKUAS I had approached who admitted that they would love to work on my project, but could not to do so because they would not get paid for the time they would spend on it. I managed to piece together a few hours of brainstorming, ideation, and sketching though, just enough to get clarity on some issues.





Three bigger realizations arose from my recent surveys, interviews, and inquiries:

- That my own school was not particularly motivated to help me to realize this design project, although they were excited about its success, wanted to benefit from it, and had agreed to support me.
- That I am more capable of envisioning the realization of “The MoROLL” than I thought I was. I only considered myself lucky so far, that I had built a good model of a good idea, and had made a fairly good presentation. But I never thought that I would actually have the opportunity or

obligation to build it. I could fathom of helping somebody else to build it, or let somebody build it after my specifications. But, until now, I did not think of myself as capable of building it.

- That I was outside of my comfort zone, outside of what I was comfortable of thinking of myself. That was the main reason why I was searching so feverishly for a producer, a product manager, and help to produce it.

I grossly underestimated myself, which was to become more obvious the further I went along in this process. Not only was I about to realize my own idea, but also myself. I would come to understand what I am actually capable of. The more I told others about my project, the more I realized how far along I was with my thought process on it. I realized that I had a clear perception on how it should be and look like, how it should feel and function, and that others, even experts, had no experience or wisdom to add to that end of it. They, so it seemed, were learning from me, from progress and process of my design project. In realizing that, I started to lean and to rely on my intuition in this stage of the project's development. I understood that I did not have to wait for people, even if I would desire their cooperation. I started to trust that I would either find the right coworkers, with the appropriate attitude, ability, and willingness to commit, or, if I would end up doing it all by myself, I would be able to do so.

I knew that whatever material "The MoROLL" would be made of, it had to be out of one piece, or at least look and function like as if it were. I envisioned it without a frame, and had to find a material that would allow me to do so. I intuitively knew how it had to feel once you would sit in it. Out of this feeling, I

had already created my first form study, playing with nothing else but a strip of folded household aluminum foil. Once I started to build models to size, I would use dummies as reference. One was a wooden figurine proportioned 1:10, which is normally used for drawing exercises. The other I had formed from aluminum foil, proportioned after the wooden one.



With their help, I could monitor their sitting positions, and adjust the model accordingly. I could assume intuitively how “The MoROLL” would work, how it would comfort and shelter the dummies. Not anatomically correct measurements of the chair were my concern, but the genuineness of the user’s experiences and the feelings the chair would create. I intuitively knew how the chair had to feel to sit in it comfortably, to relax, to trust. I felt how I wanted to feel when I sit in a public space, protected, safe, shielded, yet not isolated, but connected, almost intimate with the other user sitting opposite of me. I would project those feelings onto, and introject them into the design, relating to the models via the dummies.

An expert I had worked and consulted with on several occasions was Heikki Koivurova. An internationally renowned designer and innovator, he is also known as an expert on fiber composites around the world. I contacted him soon in this process, to make sure that I do not miss an opportunity to use an exciting new material in the building of my design. He was then working on the development and use of injection-molded composites made from recycled plastic and wood fibers. I was very keen to tap into his knowledge. I was hoping to find a possibility for manufacturing “The MoROLL” from recycled material. This would make my design not only more sustainable, but also more attractive. For both the end-user, and the design community, values such as sustainability, green production, and the use of recycled materials, are not only attractive design criteria, but almost considered prerequisites in today’s design market.

I had a personal one-on-one design discussion with Heikki Koivurova. He explained to me the difference between thermoplastics, and thermosets, thermosetting plastics³⁴. Thermoplastics could be reheated and reformed, due to their parallel polymer structure. After use, they can be reheated, and molded into something else. Thermosetting plastics can only be heated and formed once. After setting, they cannot be reshaped. Neither can they be recycled. Their molecules are interlaced, and cannot be broken up. To recycle them, thermosets would have to be ground up after their product life, to be re-used as filler. As I was looking into producing with fiberglass, a thermoset fiber

³⁴ http://www.eirecomposites.com/Thermoplastic_Composites_Explained.asp, 09.10.2011

composite, I was on the lookout for alternative production methods, if not for the prototype, then for the serial production. The main reason for me to use a thermoset instead of a thermoplastic is its availability in the industry, which is a direct result to its viscosity. With a very low viscosity, it stays liquid. The resin fills and connects with the fibers easily, and without pressure.

Thermoplastics on the other hand, are viscous, and need heat and pressure to be forced into fibers and forms. Thermosetting plastics, like fiberglass, can be worked with isothermally, i.e. with and in the surrounding temperature. They need neither cooling nor heating. To combine plastics with fibers and fillers adds to the materials rigidity and strength. Depending on the ingredient, the plastic-composite's thermo-expansion can be determined and controlled. I learned from Heikki, that there are several companies in the North-Carelian region that manufacture plastic composites into a wide range of products: Kareline³⁵, Flaxwood³⁶, All-Plast³⁷, Kupilka³⁸, and UPM³⁹, with technological development driven by Puugia⁴⁰, and TONIC⁴¹. I have been familiar with these inventors and entrepreneurs, and their products and developments, as I have been working on projects involving their innovative products, and I have been participating in seminars revolving around their innovative materials and production methods. I found myself in good company.

³⁵ <http://www.kareline.fi/en/main+page/>, 09.10.2011

³⁶ <http://www.flaxwood.com/home/>, 09.10.2011

³⁷ <http://www.all-plast.fi/etusivu/-/section/injection>, 09.10.2011

³⁸ <http://www.kupilka.fi/en/material/natural+fiber+composites/>, 09.10.2011

³⁹ <http://www.upmprofi.com>, 09.10.2011

⁴⁰ <http://www.puugia.fi>, 09.10.2011

⁴¹ <http://tonal.fi/>, 09.10.2011

With Heikki's help, I was getting an overview over fiber composites, their qualities and use. I also got an insight into the cutting edge of natural fiber composites, like wood-fiber composites, composites using recycled plastics and hemp fibers, and plastic composites with soapstone components. Although I could not apply his information on injection molding to my project at this time, his knowledge about fiber composites and resins helped me a great deal. Our discussions introduced me to the option of building "The MoROLL" out of fiberglass, a material I had not seriously considered before. A similar option, but not that readily available, were hemp fibers compounded with natural resin. At the same time, I was introduced through Heikki to other projects, which were utilizing new ways of using fiber composites. TONIC, a tonal innovation project, successfully uses wood-fiber and plastic composites to build tonal instruments. ELASTOPOLI⁴², also introduced to me by Heikki Koivurova, works on making polymers available to the industry. I had contact with their CEO Markku Nikkilä, and Timo Ture, who now produces drums made from soapstone composite⁴³. MIKTECH⁴⁴ concentrates on exploitation of new technologies and inventions. On Heikki's recommendation, I called Kai Hannonen, their R&D (Research and Development) Manager for composites. He was working on the development of hemp fibers in combination with water-soluble natural resins at that time. Unfortunately, although I followed each and every one of Heikki's leads, and I

⁴² <http://www.elastopoli.fi/>, 09.10.2011

⁴³ www.stonedge.com, 09.10.2011

⁴⁴ <http://www.miktech.fi/>, 09.10.2011

had contacted all the companies and persons mentioned above, none of my outreach would result in cooperation.

My progress in research told me that I was onto something. I was comparing information, as I had not researched fiber-composites as a building material before. I also had no practical experience in working with it. The information gathered so far on plastic composites was extremely helpful, but could not be utilized on this project for now, mainly because of a lack of interest in the industry. I was grateful for the first-hand information about cutting-edge technology and development in that innovative industry, but I needed to look further. I wanted to search out traditional branches of industry and handcraft, where I could be helped with an individual production process. By now, I had many answers, but no solution yet. I understood a lot more about the manufacturing process of products made from fiberglass. A manufacture of "The MoROLL" made form fiber composites would require individual layering of fibers by hand, the joining through resin or glue, and a sandwich structure created by those layers for stability. I was a big step further. I saw the possibility to manufacture the chair by hand, without the necessity for a factory, or machines. I still would not dare to attempt building it myself, but I was confident that I would find a specialist who could help me with knowledge, experience, and lending me a hand, should I decide to produce it from fiberglass. Yet, I was apprehensive about fiberglass as material. I still remained under the impression that a mold would be necessary. A mold would require a large construction of a negative form of the inside arch of "The MoROLL", which in return could only be achieved by a positive counterpart exactly replicating the features of the chair.

Furthermore, two positive molds for the leg-rests would have been needed. For the time being, I had ruled out the idea of producing “The MoROLL” with layered wood, because I could not imagine a mold that big and stable. Especially in wood lamination, forming had to be done under pressure, heat, and/or a vacuum, to create bonding between the laminate layers and the glue. The machinery required was not available for me in the size I would have needed for the chair. If I would make it from fiberglass, pressure, heat, or vacuum were optional, but not required. The process could be done by hand, and the material was fairly affordable. Although I was not crazy about fiberglass as a material, it at least seemed like an achievable solution. Fiberglass had the notion of a toxic and artificial material. It was so widely used, and such an industrial material, that I thought of it as “un-sexy”.

My former involvement in extra-curricular projects had led to some valuable contacts and rapport with students and teachers outside my own campus. I asked for a meeting with Jukka Tulonen, lecturer and expert on plastics, molding and 3-D modeling at the engineering department of NKUAS. After having introduced him to my project via e-mail beforehand, we met to discuss options of producing a prototype. We had to consider our given means, that was a limited budget, if any at all, and the range and scope of what the physical and technical environment of our school could accommodate. I came prepared, with models, sketches, and former presentations of this project. We discussed construction options from a static point of view. We considered the benefits of a flat profile of the sitting surface, versus a curved profile. We agreed that in either case, the edges alongside the sitting surface had to be curved, bent backwards,

or at least angled up, to afford additional strength and rigidity. He also introduced the idea of using ridges in the surface as stabilizing factors. We looked at the four different versions of “The MoROLL”, as proposed in my presentation for the IDA 2009, to select one of them to focus on.



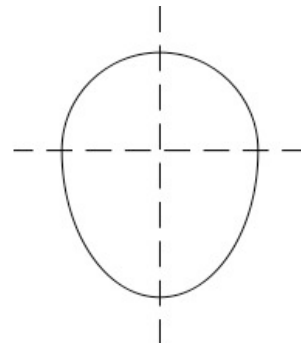
As it did not seem feasible to consider producing a multi-functional chair, nor producing all four versions, we needed to select one version that would be most likely to function well as prototype. It had to be most convincing when presenting the design concept as a whole, while at the same time be the least likely to fail in its function. And it had to be doable with our available resources. We both felt strongest about the double-seater version with at least one side folded out, for stability reasons. If one, or even both sides, were folded out, it would support the structure of the chair. Therefore, the construction could be

lighter. We could not see the possibility of creating a rocking chair that would rock the weight of two adults back and forth without torque at this point. After all, the novelty and innate human design concept was connectivity, privacy and communication, and not the mechanical function of the chair. With one or two sides folded outward, the chair would not have to be able to move. It could be bolted to the ground, to avoid jolting and jerking when sitting down into the chair, or even an eventual, although unlikely, rolling over. Thus, the lightweight construction of the chair could be helped considerably.



Stability was a big design issue with “The MoROLL”, but I wanted to solve it within the design. Even in the prototype, I wanted to display the effortlessness of my original design seen in the models, which featured a side-profile shaped like an egg upside down. The center of gravity, the wide side of the egg, seemed to be reversely on top of the chair, thus making the chair appear weightless. I asked Jukka Tulonen, if the stability innate within the shape itself could be enough to support the purpose of the design, which was to provide

sitting comfort for two people. According to Jukka, the shape of “The MoROLL” would ensure adequate support for the user’s legs, and their lower and upper backs. Additional stability would result from its profile, which did resemble a chicken egg⁴⁵. An ovoid, an asymmetrical oval, pointed oval or oblong diameter, has greater stability than a symmetrical shape, like an oval, or a circle. The pointy side of an egg is also its most stable.⁴⁶ Stability came as much from the shape of the design, as it would come from its material.



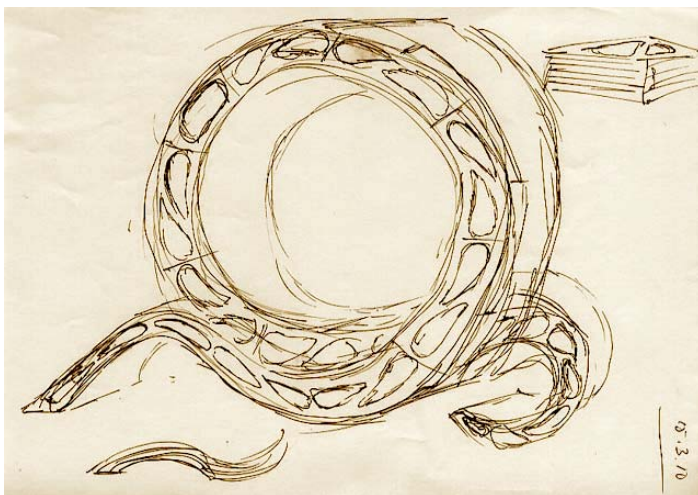
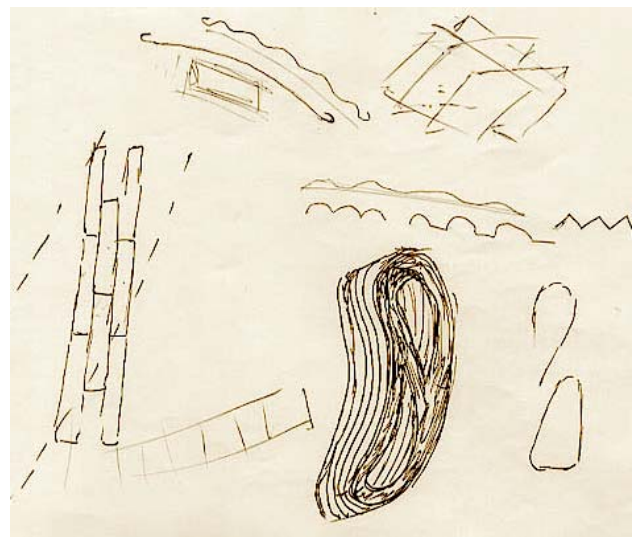
After agreeing on the basic shape, I debated a rather different, but radical design approach with Jukka Tulonen: the use of cardboard⁴⁷.

⁴⁵ <http://upload.wikimedia.org/wikipedia/commons/thumb/f/f3/Oval1.svg/220px-Oval1.svg.png>

Illustration by Wikipedia, used under Creative Commons License, 03.11.2011

⁴⁶ http://en.wikipedia.org/wiki/Oval_%28geometry%29#Egg_shape, 03.11.2011

⁴⁷ <http://www.leokempf.com/cardboard.html>, <http://blackdogonline.com/design/outside-the-box.html>, <http://www.igreenspot.com/gruff-an-eco-friendly-furniture/>, 03.11.2011



Inspired by Frank Gehry's "Wiggle Side Chair"⁴⁸ from 1972, I was interested in the possibility of manufacturing "The MoROLL" out of corrugated card- or

⁴⁸ <http://www.vitra.com/en-un/home/products/wiggle-side-chair/overview/>, 27.09.2011

fiberboard⁴⁹. In this case, construction and assembly of the chair are approached from the shape of its side profile. The profile of the chair is used as a template, which is cut out of layers of cardboard. These are glued on top of each other, until the width of the chair is achieved. Frank Gehry called this material “Edge Board”⁵⁰, and shaped it into a series of cardboard furniture he named “Easy Edges”. Impressed by its stability, its possibility to use recycled materials, and a seemingly simple and inexpensive way to produce it, I was curious to find a possibility to make “The MoROLL” in a similar way. In comparison to fiberglass, I was in love with this material, its properties, potential, and possibilities. This I would call “sexy”, for it is offbeat, recycled, recyclable, inexpensive, uncommon in use for furniture, yet very common in everyday use, lightweight, yet stable, and simple in manufacturing.

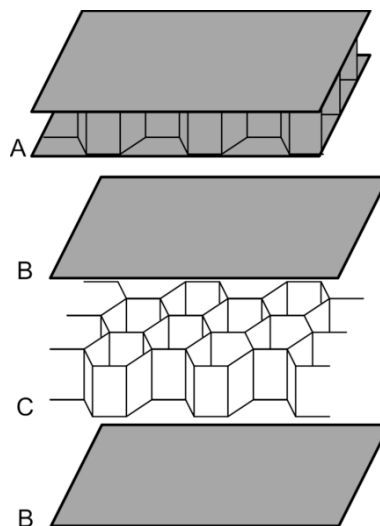
An idea was sketched earlier, where the large structure could be pieced together out of smaller bits, each representing a part of the curve and unique shape of the whole. The small units would be glued together from 5-10 layers of corrugated cardboard, which in turn would be glued offset to each other, so they would interconnect like finger joints. A big plus was the innate honeycomb structure of the cardboard, guaranteeing rigidity for the construction, and stability for its use. Honeycomb structures use their hexagonal geometry to create a maximum of strength with a minimum of material, density, weight, and

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http://upload.wikimedia.org/wikipedia/commons/thumb/b/b6/Corrugated_Cardboard.JPG/220px-Corrugated_Cardboard.JPG Illustration by Wikipedia, used under Creative Commons License, 28.09.2011

⁵⁰ Alexander von Vegesack, 1996, 100 Masterpieces from the Vitra Design Museum Collection, p. 52, Weil am Rhein, Vitra Design Museum

cost. In nature, bees build their nests in a honeycomb structure, and many plant cells are constructed in a similar way, where thin walls separate hollow cells. The illustration below shows a composite sandwich panel (A), with honeycomb core (C) and face sheets (B)⁵¹. Stability created through structure and design, rather than added strength from material, means less weight, and less volume. One cheap resource of such sandwich-structured material with similar properties of density and stability is corrugated fiberboard.



To fabricate “The MoROLL” out of corrugated cardboard looked like a feasible alternative, considering costs, material, tools, and machinery required. The big problem yet unsolved was how to keep the sitting surface plain to the ground,

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<http://upload.wikimedia.org/wikipedia/commons/thumb/b/b2/CompositeSandwich.png/220px-CompositeSandwich.png> Illustration by Wikipedia, used under Creative Commons License, 28.09.2011

and not angled following the continuation of the spiral. All the examples of designs made of corrugated cardboard I have seen so far were using the material in a straight manner, perpendicular to the ground. The outside walls of “The MoROLL” had to be in orientation with the axis of the spiral, which would tilt the perpendicular of the sitting surface to the side. Again, a mold or a template would be needed to assure the proper orientation. At this point, the only way I could imagine how to assess and measure curvature and tilt was by actually building a full-sized model or mold. I continued research, and kept Jukka Tulonen updated. He agreed to be my mentor on this project, depending on the school’s permission and authorization. We made another appointment for a meeting within two weeks. In the meantime, I researched suppliers for plastic materials⁵² as he suggested, as I still considered all options when it came to the material.

By mid-March, Jukka Tulonen and me came to the mutual understanding that “The MoROLL” cannot be produced inside the school given the technical requirements for its size and material used for production. As an engineer, he understood the requirements for stability within the materials used for production, and saw the necessity for the use of rigid materials and a production process, which would lead to a sturdy and rigid product. The spring-shaped loop of “The MoROLL” leaves the ends open, therefore allowing for torque, twist, and bouncing. We agreed that a ladder-like frame made of metal tubing would not achieve stability until a certain thickness of material is

⁵² <http://www.vink.com/>, <http://www.plasteurope.com/default.asp>, 28.09.2011

reached. To weld all connections instead of bolting them together, and adding crossbars would have added further stability and rigidity. Not being a skillful welder, and with none of the connections in the design being rectangular, I was favoring an assembly with screws and bolts over welding. For welded connections, a skilled welder and a precise positioning tool would have been required. An object that size (estimated at 180 cm high, and the ground-measurements of 240 x 240 cm) would have required a full-sized model or template just to keep all its parts aligned. If I could have built that, then I might have had as well built the prototype. With Jukka's professional opinion, and based on a cost-benefit equation, including its weight and heavy looks, I finally ruled out the option of building "The MoROLL" with a metal frame.

5.4 Relinquish, Bow, And Retreat

If I could not manufacture a functioning prototype at our school's facilities, with supervision and guidance of NKUAS's staff, I was at least hoping to get Jukka Tulonen's help with 3-D modeling and testing. He could generate three-dimensional models of designs, and test them for their intended use. With the "Pro/Engineer" computer program, it was possible to generate virtual user scenarios, and simulate stress on the construction to test the model's performance. This would yield answers and insights, which would help me to improve the design before starting construction. I was hopeful that it would help me in making confident decisions on what materials to use, and how to construct it. A still missing authorization of the school's principal for a budget, a general practice of non-cooperation in NKUAS, and the still pending assignment

of a project manager averted collaboration and progress. Jukka took it upon himself to investigate the possibilities for cooperation between our departments. He was trying to find out if his employment in a different department would allow for his involvement in my project for a longer period of time, but to no avail. Although he was trying to accommodate school regulations by re-defining our work-relationship for him as a contributor, cooperator, assistant, project manager, or supervisor, the school's decision was that its budget would not cover extra hours in his salary spent on a student's project outside his department. As this was neither the first nor the last time that my petitions for support would harvest rejection, I realized, but also learned to accept, my school's position on my project, and on me as a student.

It was difficult for me as a foreigner in a country where I did not speak the language to consider ways how to expand my environment. My resources, which were limited to the environment I had known so far, seemed almost depleted, or showed themselves as non-existent. I felt disappointed and abandoned, but also exhausted. Nobody seemed responsible, or able to respond. Nobody could be held accountable, or could be accounted for. Nobody seemed to be able to commit, or even wanting to commit, or to want to participate, to be part of it. I tried to accomplish something, and I needed support. If it had not been for the school's involvement in my project, these circumstances would not have influenced me. I was used to working by myself, and to taking responsibility. I did not need anybody to tell me what to do, neither was I used to ask for permission when I wanted to do something. But in this case, the school was the sponsor, and my environment of practice. I was

supposed to create something, to act, but I was stalled by postponement when asking for the authorization of budget and personnel so I could act. Decisions were needed, even if they meant rejection.

I began to make personal decisions. I took postponing and hesitation for a “no” to my project. In the end, it did not make a difference if somebody could not or would not support me. Either way, I had to move on, and find a solution. I either had to get my school's support, or free myself of its importance for this project. I could not allow anybody to slow me down, or to jeopardize the outcome of a project I was responsible for. I did commit to it, and to its outcome. Once completed, it would not only represent my design, but also my school's reputation on an international stage. I did commit to see it through, but could not see it even getting started at this point.

An inventory was needed, to assess my situation, and to come up with a plan of action. By now, I knew something about materials that I could use, but more about materials that I could not use. I had explored all the available in-house sources, but they were insufficient, or non-existent. I needed to branch out, and explore and consider outside resources. I needed to know how far I could go, and how much money I could spend. Almost three months into the project, I was still waiting for directives from the school's head office on budget and personnel for this project. I was overwhelmed, and I felt like giving up. To ask for guidance in this matter, I requested a crisis meeting with my student counselor Mervi Kurula.

If there ever would be a school budget for my project, I would have preferred a project manager other than myself, to monitor expenses, to keep the whole project in line with the budget, and to report back to our school's principal. I would have preferred a professional, with the authority to approve expenses, to hire work, and to buy materials. He would have overseen process and progress of the project. A native would be needed to help me with the language barrier, to contact businesses, and to help me with research. Searching the Internet or the phone registry to come up with valuable information is nearly impossible without speaking the Finnish language.

I had encountered another problem, which I was not aware of at first, which was my e-mail address, "michael.weinmann@edu.ncp.fi". A non-Finnish last name keeps most locals from answering an email. Using the school's e-mail address, which sports at least a ".fi"-ending, as opposed to using a private account with a ".com"-ending, was no help either. The ".edu"-ending made the addressed aware that I was a student, and therefore not to be taken seriously. I ended at the end of their priority list. My experience showed that I had not one reply from any professionals I had contacted outside the school's perimeter. When I followed up on an e-mail with a phone call, most admitted that they simply had not paid any attention to my e-mails. They had not even been curious as to the content of the mail. All of those addressed were capable of speaking and writing in English, so no excuse there. Their web sites were, for the most part, in Finnish and English, which justified an approach in English language. International business was welcome, and attended to, international students were not. If I was not obviously affiliated with somebody or something they

knew, they remained uninterested, and declined any future involvement. Identifiable as a foreign student, I remained a foreigner, and only a student; two good reasons for not being taken seriously in the professional world.

Not only did I need help with my project, but also with translation and communication, somebody to bridge the cultural gap. To employ such person, I needed an authorization from NKUAS, and a budget. Prepared for a serious talk to solve these interwoven problems, I scheduled an appointment with Mervi Kurula. I was hoping that if I did not get an answer from our principal about budget and personal, maybe she would. I tried to give a complete description of my situation, including a rapport on the development of the project, the research I had done, and my experience so far.

Until now, I had not realized how much I had worked on that project for the last two months, how many people I had talked to and contacted, and how many possible and impossible solutions I had considered. In the beginning of our meeting, I was describing my situation listing facts and events, but soon I became emotional. I realized how exhausted and frustrated I was. I had come to the right place. Mervi has always been sympathetic and helpful throughout my study time at NKUAS, always listening, and always concerned, no matter what the nature of the problem was. After a long talk, we went to work. We structured all the problems, questions, and details into four main problem groups:

- Production process

- Technical solutions
- Project management
- Intellectual property rights

We agreed that I needed help in all four points, and that we had to find the right people to help me. As this was to be a professional project, we needed professionals. And professionals do not work for free, so we had to come up with a list of people who had to be either authorized by the school's principal to work on this project, if they were staff of NKUAS, or their salary had to be included in the budget. As I had already briefed several specialists, and most of them proclaimed interest in the project, I was prepared to name my selections:

For the production process she suggested I find technical help, someone who knows design and production processes, and who is a skilled worker. I suggested Riku Rantala for the reasons I had mentioned before.

For the technical problems, we needed someone who is a specialist in that particular field, has experience, and thinks innovatively on both design and material. I suggested to approach Jukka Tulonen, but also to ask Heikki Koivurova.

For the project management, she understood that I would need a manager. I would need support in the project itself, but also someone who could see the project through to the end. In addition, he would have to bridge the language gap, and to help me to effectively approach local businesses and factories. I again suggested Jukka Tulonen, as he was already in a capacity of a teacher at our school.

For the problems with protecting the intellectual property rights, we had no solution yet, but agreed that we both would continue research and inquiry.

She helped me to realize that at this point I was struggling with the symptoms of three major problems:

- Time,
- Motivation,
- Support.

Time was limited, and seemed being wasted, or at least not utilized at this point. My motivation was down because of exhaustion, worry, and frustration. The motivation of cooperators still had to be kindled, either by directive or finance. Support was needed unto the end in all areas:

- Finances,
- Technology and engineering,
- Mentoring, sponsoring,
- Oversight, organization, and guidance, and finally,
- Commitment.

As a counselor, she reminded me that this very process of organizing oneself is part of this project; that it had to be hard, if there were something to be learned, and that it would be emotionally challenging. She advised me to consider this project as a smaller part of a bigger picture. If I envisioned what I wanted

exactly with “The MoROLL” at Habitare Fair, the desired outcome from exhibiting it at the fair, I would see the bigger picture. If I reminded myself of future plans, like selling the idea or the product to a manufacturer, or starting my own company, and producing it myself, then I would be able to let go of current difficulties. I took the advice to heart, and felt confident to be on the right track, as I had already taken initiative on many levels. But now, I got feedback on my endeavors. In conclusion, Mervi suggested the website of MUOVISTUDIO⁵³, the producers of Eero Aarnio’s “Pastille” chair, for further inspiration and research. She thought that it also being made of plastic or fiberglass, it could be a valuable source.

⁵³ <http://muovistudio.net/index.php?osio=4>, 29.08.2011

The Pastille Chair

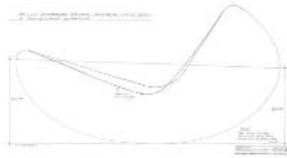
The origins of a classic

Interior architect Eero Aarnio, born 1932 in Helsinki



"The idea for the Pastille chair came from the Ball chair. I thought how the Ball sends a lot of unused space out there. The Pastille chair is designed to just fit inside the Ball chair. The truth, however, is that people will not buy the two chairs at the same time."

"I like the sheen of fibreglass, its hard surface and bright colours. It has to be used for making large, impressive objects. The Pastille chair was assembled from two parts with the rough surface of the laminate left unsewn. I designed the chair to be an ergonomically good utility object. The first version was of Styrofoam and I carved a seat into it according to my own measurements. It was not quite perfect, but from the second version I could already proceed to a symmetrical full-sized model made of wood, which was then used for preparing the actual fibreglass mould."



"Pastille is a rocking chair. In designing it, it was necessary to keep in mind the centre of gravity to prevent the chair from tilting too much in any direction. It was also necessary to think whether fibreglass could be placed directly against the floor, or whether the bottom should be protected with some other material."

"An international name is always sought for my products. Sometimes the names come of their own accord, and sometimes they require some thought. Pastille evokes an association with cough drops. The chair has also been called the Pill, but that word has negative associations. You take pills when you're sick, but pastilles can be eaten by anyone."



Aarnio laminated the first Ball chair (1963) himself. He made a mould out of strips of plywood, lined it with kraft paper, upon which the form was laminated. The ground and polished fibreglass proved to be too flexible, and the interior was reinforced with steel tubing. Finally, the seat part was upholstered. The leg of the chair is of cast aluminium. Around the same time, Yrjö Kukkapuro also designed in fibreglass in Finland (Karuselli 1964).

Laminating a chair is the work of a craftsman

The Pastille chair is handcrafted. The green surface of the chair is injection moulded and the fibreglass reinforcing members are placed on top of the hardened surface. The reinforcements are shaped to conform to the mould by laminating with resin. The lamination is done separately on both halves of the mould and the respective halves are glued together. After gluing, the product is finished by hand. This technique is also used for making items such as boats, kayaks, glider parts and containers.



"I regard the Kupla (Bubble) chair as my most innovative chair design." It is blown like a soap bubble. A 10 mm sheet of acrylic is blown through a metal ring and slowly cooled to the shape of a bubble.



A collectible and a retro product

The Pastille chair came on the market in 1968 and it was originally sold mainly in the Asko company's own outlets in Central Europe. Sales figures slumped because of the oil crisis. Production of the model was resumed in the early 1990s, being presented by Adelta at the Cologne Furniture Fair. Demand grew around the middle of the decade, and the leading countries in terms of sales were the United States, Japan, England, the Netherlands and Germany. The target group consisted of young people who were not previously familiar with the chair. Recently, some 100 Pastille chairs have been sold each year.



5.5 Outside Help And Resources

I continued research for resources outside of school. I was looking for production facilities, interested producers, or simple and affordable ways to

produce the seat myself. The open question on how to protect my copyright while presenting my idea to the public was inhibiting my search. I was not yet aware of the European copyright laws, which would protect the copyright to my design for the first three years after publication as unregistered Community design (UCD)⁵⁴.

Janne Häyrynen, teacher for wood marketing in the forest industry department of NKUAS, and expert in wood species, wood products and laminates, helped me a great deal with his consideration, insight and expertise. He suggested that I contact Joptek, a Finnish producer of fiber composites. Their company mission statement sounded just like what I was looking for: “Joptek Composites, a pioneer in composites technology, designs and manufactures customer-driven lightweight construction. Besides supplying composite structural systems to the transport, marine and building industries, we also develop and implement lightweight construction solutions for sectors where composites have not been used earlier.”⁵⁵ Unfortunately, this company fell under the category of companies described earlier. My e-mails remained unanswered, my phone-calls put on hold, and my project was “not big enough” for them to even consider, let alone to get involved.

Janne then established contact with Samuli Taponen⁵⁶, a former employee of Joptek and one-time student of Janne’s. He was now working in business

⁵⁴ <http://oami.europa.eu/ows/rw/pages/RCD/protection/protection.en.do>, 27.11.2011

⁵⁵ <http://www.joptek.fi/en/company/vision/>, 27.11.2011

⁵⁶ <http://futuremissions.fi/>, <http://www.pikes.fi/en/index.cfm>, 27.11.2011

development. After briefing him with technical details, we arranged for a meeting at his office in Joensuu. From the beginning, we focused on the business aspect of producing “The MoROLL”. This proved to be a valuable contact, which has developed into an ongoing business relationship. We had several meetings throughout the whole year.

5.6 The Business Aspect

It was helpful to look at the business aspect, even though the design process was still in its infancy. It prompted me to develop a time and business plan for the months to come. Without figures for budget or materials, I at least prepared an estimate for a time schedule for the production of “The MoROLL”⁵⁷. This first meeting, and the ones to follow, turned out to be inspiring.

I was dealing with companies outside of school, and I received validation, attention, and concern for my project, as I had not in school. Here were professionals who listened, and were ready to help me to find a solution. They did not ask to be paid in advance. In fact, they did not ask to be paid at all at this point. They considered first the feasibility of my project, and how to accomplish it. Then, they would ask how they could help. Later, we would develop a business plan, which would return our investments, theirs and mine. I did not expect gratuitous handouts from anybody, not even my school. I did not ask for charity from anybody. I understood that I would not get anything for free. Professionals who would spend time with my project were interested in some

⁵⁷ Appendix 2

form of later return. Before they invested money, they had to invest time to investigate the possibilities of a return. That was their initial risk free investment they had to make. Companies, who continued to be involved in my project after initial scrutiny, were in it for professional reason. Their motivation was either publicity through affiliation, or the prospect of future business.

NKUAS went into business with me under the same premises. My school promised to support, and finance the building of the prototype of “The MoROLL”, in return for publicity for, and promotion of the school. My award-winning design had proven that it would arrest attention. The publicity it already had gained, and would gain at the Habitare fair, prompted our department’s director to select it to exclusively represent and promote NKUAS at the fair. Honorable at first, it turned out to be disappointing, as the school was not holding up their end of our deal. NKUAS’s investment and involvement would not go past their initial promise⁵⁸. The moment I allowed that reality to set in, I was able to let go of the idea that NKUAS was in charge. I stopped waiting, and I stopped asking for permission. I was open to focus on support, which had to come from the outside. I finally was independent, and free to move forward.

⁵⁸ From December 2009 until September 2010, no resources were assigned to me for purpose of use for my project. Throughout planning and building, I had not received of any support, personnel, or budget. After returning from Habitare, I asked for a limited amount to be made available, which allowed for reimbursement of some of the material expenses Paavo Honkanen had when helping me to build “The MoROLL”. His invested time remained uncompensated. The providing companies who were sponsoring me covered the majority of material expenses.

5.7 A Breakthrough At Last

March 29, 2010: Finally, I had a breakthrough! I followed up on a lead I had received from Harri Tuononen, an NKUAS alumnus. He had remembered a fellow student of his, who went into the family business, building boats from fiberglass in a town near by. I contacted Eemeli Piironen immediately, and arranged for a visit at the company. Beforehand, I briefed him, sending pictures of the models of “The MoROLL”, and a rough estimate of measurements via e-mail. I asked him if he thinks it would be possible to build, and if he would be able to help. He invited me for a meeting and a tour of his production facility on.

AMT Boats⁵⁹ is a manufacturer of small sport motorboats in Kontiolahti, a small village outside Joensuu. Riku Rantala accompanied me on the factory visit, in case I would have needed an interpreter. We saw the AMT factory, and were shown the production process. I had not known about the process of designing with fiberglass, nor had I known anything about its properties, the tools needed, or its capacity as a building material. The moment I entered the factory floor, it became clear that fiberglass could work as material to build “The MoROLL”. I saw boats 5-6 meters long, weighing between 500 and 1100 kilograms. They were built only out of laminated fiberglass mats, glued together with resin, and covered with gel-coat.

⁵⁹ <http://www.amt-veneet.fi/index.php?l=en>, 27.11.2011

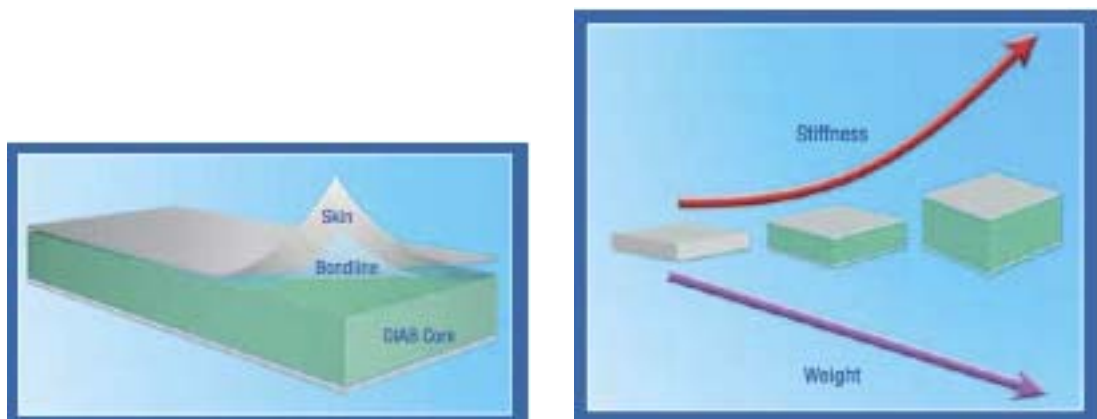


Their wooden molds looked sturdy, but were only there for the fiberglass mats to be applied on, until the resin would harden. In its finished state, the boat's shell would be without any wooden enforcement. The stability was designed into the fiberglass structure. Usually shaped to form a semi-hollow body, their curvy shape would give them enough stability to carry their own weight. Put two halves together, and the body would be stable. Either hollow, or filled with polymer foam, the ship's hull would provide enough strength, rigidity and float to support the weight and function of a boat for several passengers. Clearly, I could utilize this technique for my project. I would have a lightweight, yet stable solution without needing a frame.

I learned about two main techniques used in building these boats, hand lay-up and spray lay-up operations⁶⁰. In the hand lay-up, resin is mixed with a hardener. Then, the mold is wetted out with the mixture. Mats of fiberglass are placed over the mold, and rolled down into the mold using metal rollers. Later,

⁶⁰ <http://en.wikipedia.org/wiki/Fiberglass>, 27.11.2011

additional resin will be applied, if needed, and sheets of fiberglass added. For additional strength and rigidity, Divinycell⁶¹ was added as an extra layer. Divinycell is a polymer foam, which serves as the core in a sandwich structure⁶² between two layers of fiberglass. A sandwich structure consists of two high strength skins or surfaces separated by a core material. The skins take up the bending stresses and give the structure a hardwearing surface. The core material absorbs the shear stresses, adding rigidity, strength, and buoyancy. The thicker the core, the sturdier the structure, yet minimal weight gain, as the core is made of foam.



In the spray-up process, resin and reinforcements are sprayed onto a mold. The resin and glass fibers are applied with a spray gun. Workers roll out the spray-up to compact the laminate. A core is added, like above-mentioned Divinycell,

⁶¹ http://www.diabgroup.com/europe/products/e_divinycell_h.html, 27.11.2011

⁶² http://www.sandwichpanels.org/articles/article_whatmakessandwich.html, 27.11.2011

and a secondary spray-up layer imbeds the core between the two layers. The part is then cured, and removed from the reusable mold. If I would use the spray-up process in the production of “The MoROLL”, I would need a mold. And for a mold, I still needed to make a prototype first, after which the mold could be drafted. Otherwise, both the lay-up and the spray-up processes seemed simple, affordable, and fast, provided the proper tools, knowledge, experience, and a suitable workspace. Not only were professional tools needed, especially for the spray-up process, but also a safe working environment. Both fiberglass and resin bear health hazards, which only ample air ventilation and filtering systems will help.

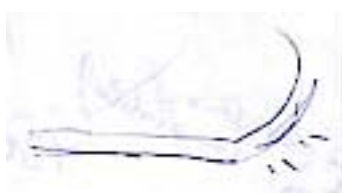


For the first time, I saw the probability of manufacturing the prototype of “The MoROLL”. As I saw that it would be possible to make big, lightweight structures, sturdy and rigid enough so they do not wind, torque or twist, the choice of material came with it. After Eemeli showed us materials and tools they used, and boats in different stages of production, we discussed solutions for “The

MoROLL”. Speaking from experience, Eemeli suggested to start with one flat sheet of laminate, measuring 800 mm wide, 6000 mm long, and 5 mm thick. After curing, it would be flexible enough to bend to the shape of “The MoROLL”.



After assuming its shape, brackets could be applied to keep the sheet in place. Then, a layer of Divinycell would be glued onto the propped sheet of fiberglass. Once cured, the brackets could be removed, and “The MoROLL” would have assumed its unique shape. The structure would be stiff enough to allow for a cut into two halves. In the earlier design phase, I contemplated a two-part construction for easier transport. We debated different solutions to insert a joint on top of the loop, made from plywood, or aluminum.



As I witnessed the ease and speed of the production at AMT Boats, I could not help myself but ask if it were possible for them to produce “The MoROLL”, or at least parts of it. But Eemeli had to decline, explaining their limited capacity for outside projects. Yet, he referred me to Paavo Honkanen⁶³, who produced components for their boats, and who would be an accomplished boat builder himself. He did fabricate and deliver reliably a large quantity of custom-built parts for their boats. Eemeli vouched for him to be “the right man for the tricky stuff”. He called him in that very moment, explaining my situation, and asking his help. We were welcomed to stop by his workshop the same afternoon.

Not only did I learn about new materials and manufacturing methods that day, but more so I had a solution, a way to produce “The MoROLL”. There might have been other ways, and even better ways, and sure enough “greener” ways, healthier and environmentally more cautious, but that did not matter in that moment. After months of erring and rejection, finally, I felt understood, taken serious, and had a professional solution on my hand. There was light at the end of the tunnel after all.

⁶³<http://www.fonecta.fi/tuotteet-ja-palvelut/Joensuu/412633/Paavon+Paatti+P+Honkanen+Tmi/>, 13.10.2010

6 PRODUCTION

At 3 p.m. in the afternoon on April 1, 2010, I arrived at Paavo Honkanen's workshop in Joensuu, together with Riku Rantala, who not only helped with the design development in this stage, but also acted as interpreter in the Finnish language. The language barrier was to be one of the main obstacles to overcome in the months to follow, as Paavo did not speak any English, and my conversational skills in Finnish were almost non-existent. Not only did we have to come to an understanding about the problem at large, but we also had to be sure that the other person understood technical details, and understood whether the other had understood, or not. With Riku as an interpreter, being a designer himself, I could be sure that he understood my design, and the problems in producing it. I could rely on him conveying the problem at hand adequately, ensuring proper understanding not only in language, but also in technical terms. We came prepared, with a model, drawings, and sketches, and presented to Paavo what we had come up with so far, including the very recent suggestions of his main contractor, AMT Boats.

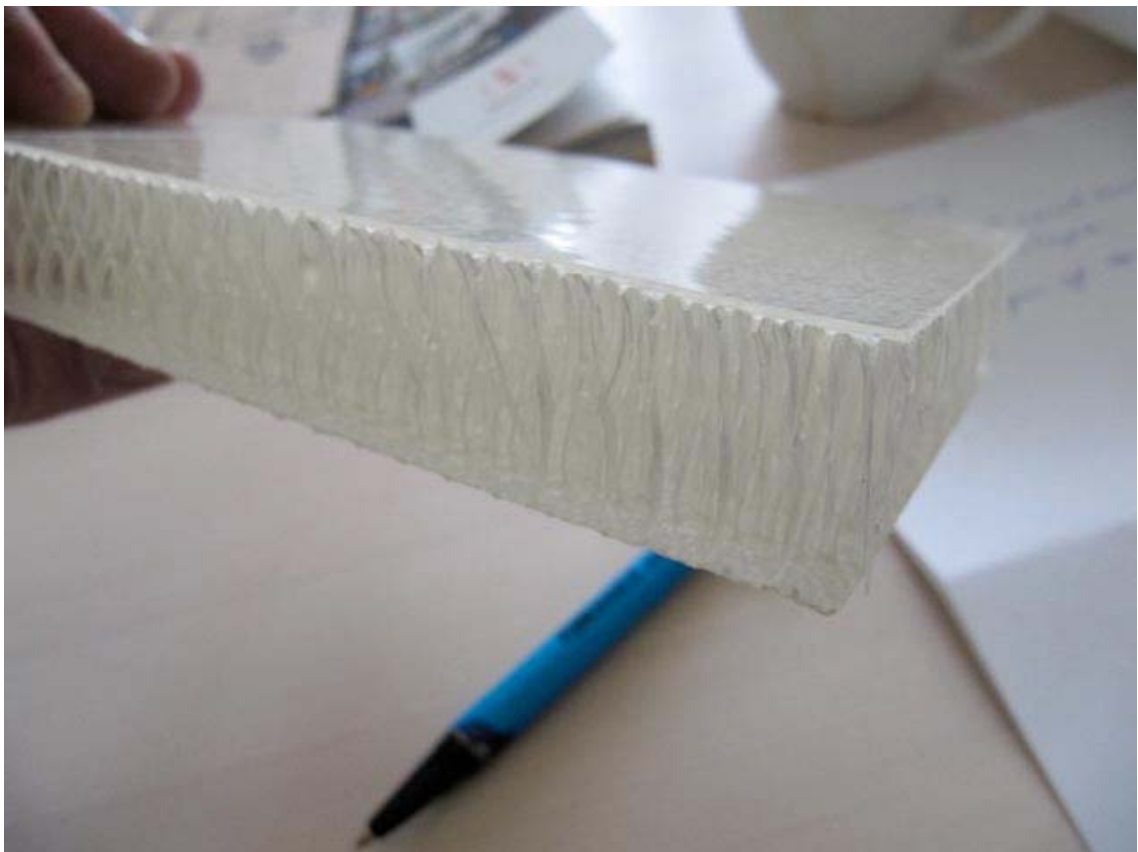
6.1 Show And Tell

In the beginning, our focus was on the feasibility of making a mold. Paavo suggested a temporary mold from cardboard, disposable, just stable enough for a one-way, one-time use. It would be best for shaping, as he would be able to

laminate the first layer directly into the cardboard. Subsequently, we discussed how to get stability into the construction of the laminated layers. Paavo suggested several versions and products for a sandwich structure. Divinycell was one option, but there were also other products on the market, more stable, yet lighter in weight. I was very interested in proven and tested solutions, as my goal was not to experiment with new manufacturing materials, or to innovate production processes. I was interested in reliably producing a functioning prototype of an innovative design, with conventional methods and proven materials. Another option was a Tubus Polycarbonate Core⁶⁴, a lightweight honeycomb structure made from plastic. A third innovative solution was Parabeam 3D Glass Fabric⁶⁵. This is a three-dimensional fabric woven from glass fibers, which extends when impregnated with resin. It assumes the form of the mold, and hardens into one thick layer. The top and bottom layer remain connected through the woven fabric inside, thus achieving maximum stability with minimum weight. As only one layer is needed, production is fast. It is finished once the layer is cured. Edges, surfaces, and paints can be applied as on any other fiber composite laminate. We considered the thickness needed, and the availability of the material in rolls or mats.

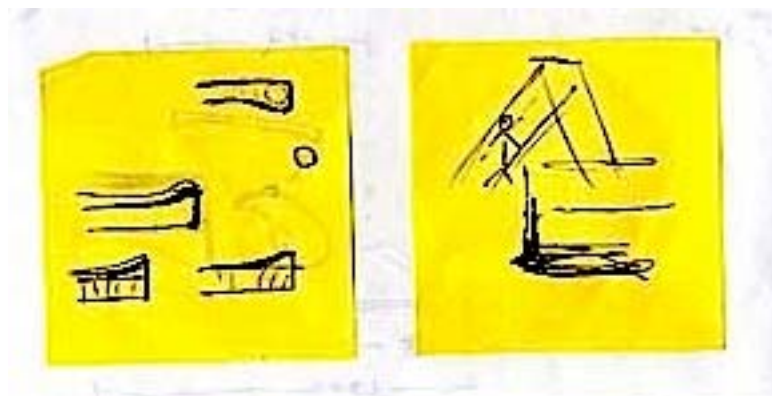
⁶⁴ <http://www.tubus-bauer.com/innovative-design-and-architectural.html>, 08.10.2011

⁶⁵ http://www.parabeam.nl/site/page/standard_fabrics, 08.10.2011



We also concerned ourselves with the cross section, especially the profile on the side of “The MoROLL”. How would it look and feel like? Was it necessary to curve it, curl it, or profile it in a cropped manner to provide additional stability?

Would it have to prevent people from sliding out of the seat? Was it necessary to have a grip or handle like function? These questions had to be clarified, as their answers would reflect directly on the material or its thickness.

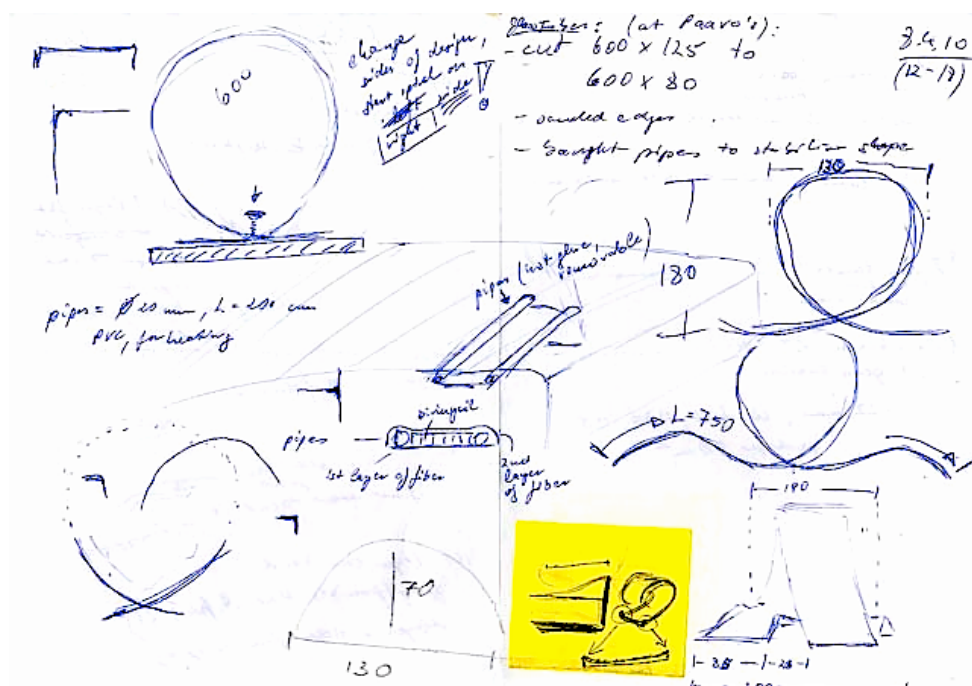


We all agreed on some sort of side profile added to the otherwise slim line of the chair. We discussed angled, cropped, curved, and curled versions, and possibilities of implementing them. Not only would it add stability to the whole construction, but also hide the layers of laminate. We were hoping to incorporate a plastic tube, which could also aid in the beginning stages of the laminating process. After all, we needed something to give the form for the loop before we could laminate and cure it into its intended shape. And if we could leave it as an integral part of the construction, we could laminate onto it, rather than having to figure out how to remove it from the laminate after curing. To my surprise, Paavo offered us to produce the prototype of “The MoROLL” at his workshop. I insisted to do most of the work myself, under his supervision and guidance of course, and with his help when needed.

6.2 And Off We Went

Our next meeting right after the weekend took my project and me a huge step further. That day turned into the first full workday on this project. Not only had Paavo prepared a sheet of laminated fiberglass over the weekend, 600 cm long, and 125 cm wide, but he was also willing to spend some more time on and with this project. I was surprised and delighted, as Paavo had no reason to help me. Yet, that was what baffled me, and continued to create moral conflict in me. At this point, I did not have a budget I could draw from, or any of my own money to give him. It was made understood that I could not pay him, at least not at this point. I was filled with gratitude, as he had done in his own time over a holiday weekend more than the whole apparatus of the University of Applied Sciences in over three months. At the same time, I was conflicted as I was unsure of him understanding his side of our cooperation. I appreciated his help, but was not expecting anything from him. Him making that fiberglass strip by himself, without anybody asking him to do it was already more than I could ask for. And still, he wanted to go further. It seemed that Paavo Honkanen wanted to be part of the project because it was unlike anything he had done before, and he liked a challenge.

Our main means of communication were hand signing, fingers pointing, and scribbling, drawing and sketching on any piece of scrap paper that lay around the workshop.



Until then, I had only estimated measurements, mainly deriving them from the models I had made in the rough size of 1:10. At this point, Paavo needed to know the exact measurements, and I realized that I had not thought of them. I obviously had not anticipated coming that far in realizing this project. This was breaking new ground, and it was developing faster than I did anticipate it. I was amazed and nervous, because every mistake I would make from now on would go into the production, and I would be responsible for it. The closest I had come to sizing were proportional relations within the models. The best thing I could do at that moment was to refer to the models, and take the measurements directly from them.



I came up with following measurements for the time being, until the actual size would prove to be different, or until I would come to a different understanding:

- The highest point of the loop was to be 180 cm.
- The diameter of the loop was to measure 130 cm at its widest point.

- The overall length of the band of fiberglass laminate would measure 750 cm from one end to the other.
- The width of the band I estimated at 80 to 85 cm, with a gap of 20 cm between the two opposing seats.
- As the band would run in a diagonal angle, which was hard to determine at this point, I guessed the overall width of “The MoROLL” at its widest point at 250 cm, and at 190 cm at the point where the seats touch the ground. That was to be at the outside corner at the foot of the chair, which was to be cut in a sharp angle, proportionally to the diagonal angle of the spiral loop.

We went immediately to work. First, we cut the width of the strip of laminate he had made from 125 cm down to 80 cm, which I hoped to be the right width.





I sanded the edges to dull them, as the cut of fiberglass is razor sharp. Next, we rolled the band of fiberglass into one big loop, trying to estimate its dimensions, and to come up with a solution on how to stabilize it, so we could laminate it with a second layer. We considered a plastic material, which would bend, yet be stable enough to keep its shape, plus carry the weight of the fiberglass band. We decided for PVC tubing, which is commonly used in home construction for water and heating pipes. It would be readily available in any hardware store, and in different diameters to choose from. We guessed our need for 20 running meters. We drove to a local supply store, and bought 10 pieces of PVC tubes, 2000 mm in length, and with a 20 mm diameter.



Back at the workshop, we tried to attach the tubes to the curve, using hot glue from a glue gun. We had to hold all parts in form and in place by hand, while waiting for the hot glue to cool down and dry. We bent the pipes, putting them under tension, which we hoped would help to hold up the weight of the whole construction. At the same time, we had to assume the right diameter at the top of the loop, and hold the pipe under pressure until the glue had hardened. In theory, this idea had its advantages, and seemed feasible, but we would not get satisfactory results. The tension we put the pipes under was too much. Once we removed the supports after the glue had hardened, the pipe would snap out of its place under the weight of the structure. The glue could not resist the tension, and the pipe could not support the weight of the curved fiberglass. Using this process, we also could not determine the exact curve the pipe would arrest in after the glue had cooled down. After several mistrials, we gave up, and reconsidered the process.



We put the pipes aside, and searched for other, more simple means available. We struggled with the concept of the spiral form of the whole loop, but soon focused on the top of the loop only. If we could stabilize this top section first, which determined the diameter, we could deal with the bottom parts later. Hard fiberboard, laminated on one side, was to serve as a template. We drew the loop's curve on its surface with pencil, assimilating the bottom part of an egg shape. The measurements could not be symmetric, as in a circle. Its diameter had to be less than twice its radius, as it would be in a circle, to allow for an elliptic shape. We measured the height at the curve's peak at 70 cm, the loop's diameter at 130 cm (instead of 140, as it would be in a circle). This drew this as a pattern on the fiberboard, after which we would glue the fiberglass. This would

allow us to assume the right curvature with the fiberglass, while we would glue both together for stabilization. Once the hot glue was cooled and hardened, we would glue another fiberboard on from the other side as well, to create a stable, temporarily enclosed space at the top of the loop. A primitive makeshift structure made from wood would support the weight of the standing fiberglass spiral. All this happened inside the workshop, on an uneven floor, without detailed drawings or measurements.





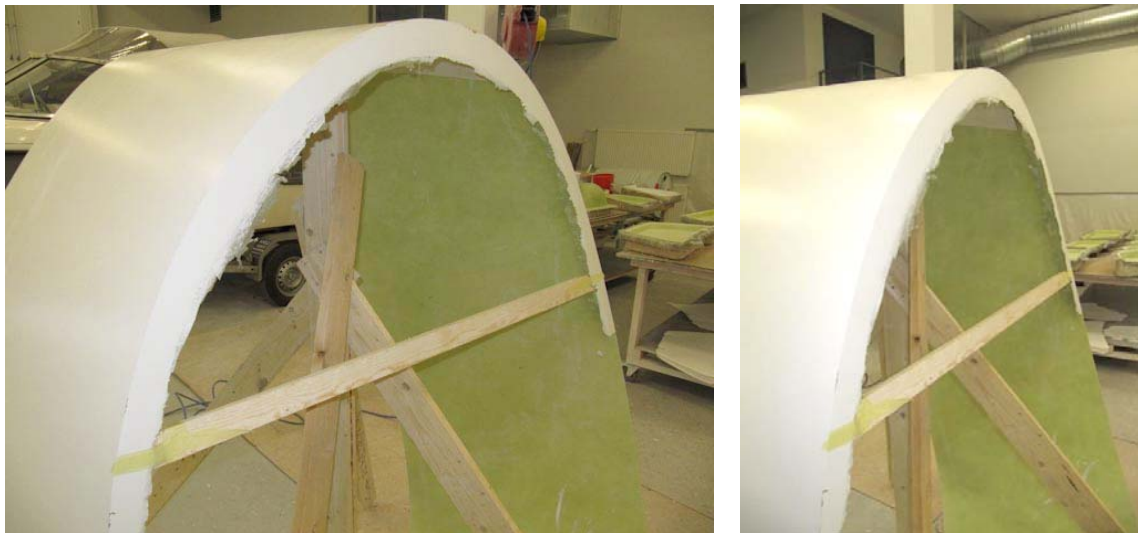
We worked faster than we could draw up a plan. The concept of how to make it developed as we were making it. “The way foists itself under the walking man’s feet.”⁶⁶ Intuition and attention were my main tools. My ability to foresee problems, and to “think outside of the box”⁶⁷ to solve them, helped me to overcome our language barrier. I also watched his hands closely; paying attention to what he was doing all the time, as we could not communicate otherwise. I assumed what he was thinking by watching what he was doing, then acted or reacted accordingly. Regarding the material, he was a specialist, and knew exactly what he was doing. At times, I only could step back and watch, which gave me the opportunity to document the process by taking notes, and photos with a digital camera.

Before we would add another layer of fiberglass or Divinycell on the inside, Paavo added a 50 mm rim of fiberglass and gel coat around the top half of the

⁶⁶ “Dem Gehenden schiebt sich der Weg unter die Füße”. (Translation by Michael Weinmann), Martin Walser, 1976, *Jenseits der Liebe*, Frankfurt, Suhrkamp

⁶⁷ “Thinking outside of the box” is a concept of innovation introduced in 1969 by John Adair, a British authority on leadership, 2009, “Never Use White Type on a Black Background”, p. 104, Amsterdam, BIS Publishers

loop. He did this by cutting thin strips of a fiberglass matt, soaking them with resin, and applying the strips to the side of the loop, where the bent structure would meet the fiberboard, and be held in place by hot glue. This would add a fiberglass rim to the side in a 90°-angle to the inside of the loop. After drying, gel coat was added with a paintbrush, pushing the gel into the corner, and brushing it up to 50 mm onto the fiberboard on the sides. After curing, this rim would stabilize the curve enough so we could remove the fiberboard and the support structure. Then we would be able to turn “The MoROLL” upside down on its “head”, and add extra layers on the inside.



The next day, we disassembled the fiberboard, which we had applied the day before. It was no longer needed, as the newly created rim supplied enough strength and stability to keep the loop curved. Our improvised plan had worked. None of us had done this before, and we were still skeptic if it would work out.

To arrest the curvature into position, we temporarily screwed in a bar of wood to keep the sides of “The MoROLL” from moving apart.

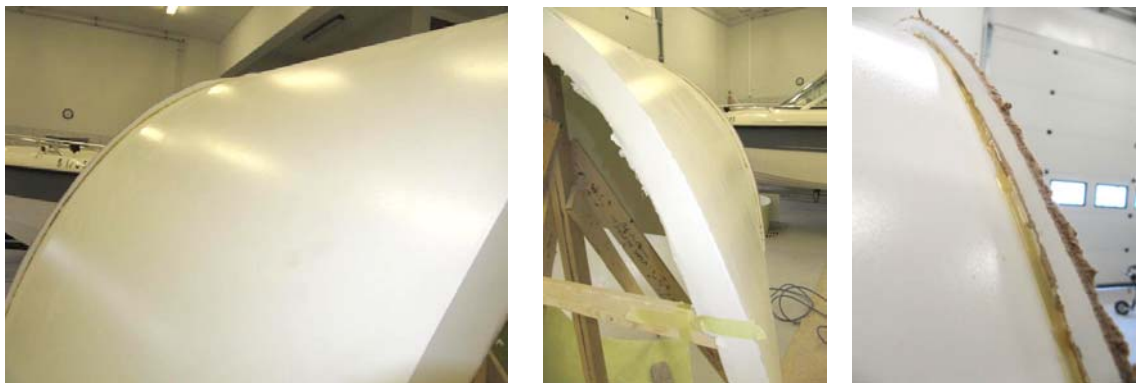


We then applied fiberboard with hot-glue to the other side of the loop. We continued using the same method of adding a rim with fiberglass and gel-coat. This time, we had to proceed with more care, as we had to insure that both sides of “The MoROLL” stayed parallel to each other. The spiral was not to twist. Its outside planes had to be collateral, to guarantee a straight sit. That meant that we had to match the same curvature, and the same measurements of the side done previously. The work of this day went much smoother and faster, as we knew what to do, and how to do it. Within one hour, we accomplished what had taken us six hours the day before.



This first week was hands-on work, get dirty, try something, make mistakes, learn from it, and try again. We started from taking the measurements from a 1:10 model, overcoming technical, cultural and communicative difficulties, and ended with a real-size stand-up shape, which looked very much like what I had in my mind originally. I felt accomplished, hopeful, and encouraged to move on. I could see the possibility of making it happen, to get “The MoROLL” to Habitare.





This was progressive action, learning by doing. And I learned much more and faster than we could have with a theoretical approach. As “The MoROLL” was something that was never done before, proceeding practically would not only yield immediate results, but also force us to rethink a solution immediately in case of failure. I did attempt to research by inquiring with specialists, but to no avail. If I would have had fixed plans, we would have tried to fulfill them, and would have been less likely to “think outside the box”. We had to change direction, improvise, and come up with new solutions to small and big problems several times a day. It worked in our favor that measurements had not been specified in advance. It would have been impossible to match them with the resources at hand. Makeshift solutions as we had employed them would have been considered too vague, and therefore inept, their success improbable. We would have needed bigger equipment, we would have had to build a mold, and we would have needed a much bigger budget. While building this prototype, most decisions were not based on what or how I wanted it to be, but on what could be achieved, and how it could be done, based on a non-existent budget

and no pre-existing experience. Learning and proceeding by doing it myself was the way to go.



The following weekend had me writing e-mails about my new success to many of the people I had contacted before and asked for help. I felt I owed them a progress report, partially because they had been concerned with my project, and because they still might be looking into it, trying to help me with a solution. I thought it only to be fair. I was also proud of my achievements so far, so I wanted to share my success. I added a few photos from the workshop as attachments, proof of my accomplishments. I thought it important to keep my network up-to-date, knowing that I still could use all the help I could get, as there would be many problems to come within this project.

The first discrepancies and problems arose with the beginning of the following week. Riku Rantala, who has been involved and helpful in the past month, was detained with other projects, and was not able to come along to Paavo's workshop. All of a sudden, little things became big hindrances. One was transportation, as Paavo's workshop was 8 km away from school, and I did not have a car myself. As a staff member, Riku would get the car in a heartbeat, but as a student, I had to make reservations in advance, authorized by a teacher. In addition, the car keys had to be picked up at the school's caretaker's office. But even with a pending reservation, it still did not get me the car when the caretaker's office was abandoned, like most of the times.



Yet another small, seemingly insignificant, but scary and uncomfortable situation arose. From now on, I was to be alone with Paavo at his workshop. Him not speaking any English, and my Finnish not going much beyond "yes" and "no", I was afraid to encounter misunderstandings that would jeopardize the proper outcome of my project. And my pleading e-mails to my school's principal

for support remained unanswered. Expressing my frustration at lunch, Emmi Haapajoki, a first-year design student fluent in Finnish and English languages, volunteered to help out for at least an afternoon.

6.3 Properties Of Quality

After we had stabilized the top of the loop, we commenced to add rims to its bottom half, with our already proven and tested method. We drew a pattern for the sides on fiberboard, trying to assume the radius of the bottom of the loop. The cross section, the lateral cut through the profile, would look like an egg upside down, and this would be the tip of the egg, the narrow side of the ellipse. We had no measurements to go by, no radius or gradient that would lead to a conclusive criteria on how and where much to bend the fiberglass. Over the past weeks, I was trying to come up with industry standards on recliner chairs, lounge chairs, and even deck chairs. But I could not find any measurements I could go by, and even if I would have found any, standard did not equal comfort. There was no theoretical data that would express comfort. But no measurements, no problem! What I could not measure, I still could make, and I could measure it afterwards, if needed.

But I had to build on something. If not measurements, I had to come up with a few terms, which would reflect properties of quality this chair should incorporate once finished. I wanted to remind myself of the feeling anybody should have who will sit in “The MoROLL” while building it. The most important qualities I wanted to incorporate into the chair’s design were:

- Comfort,
- Communication,
- Privacy,
- Protection,
- Accessibility, and
- Attraction.

I understood that once the furniture fulfills these criteria, it implements human-centered design, a design process in which the needs and wants of the user are considered at all stages of the design process⁶⁸. The idea for “The MoROLL” was born from a perceived need for privacy, comfort, and feeling safe in public places, which was created by exposure and discomfort. Open public spaces, indoors and outdoors, are rarely structured, and expose the user, both indoors and outdoors. Space is available, yet not used, and if used, it is rarely user-friendly. It usually considers the needs of the owner of the space, as in malls or airports. At the same time, the same space could be used differently, adjusting to the needs of the user of the space. “The MoROLL” wants to be a tool, which effectively addresses and responds to those needs, and can be applied to any larger public space, indoors or outdoors. The challenge I had posed to myself was to integrate the solution into one simple design, which not only satisfies the perceived needs, but also adds to the environment in a new, yet universally understood design language.

⁶⁸ Human Centered Design Toolkit, IDEO, 2nd Edition, <http://www.ideo.com/work/human-centered-design-toolkit/>, 28.08.2008

6.4 Design Priorities

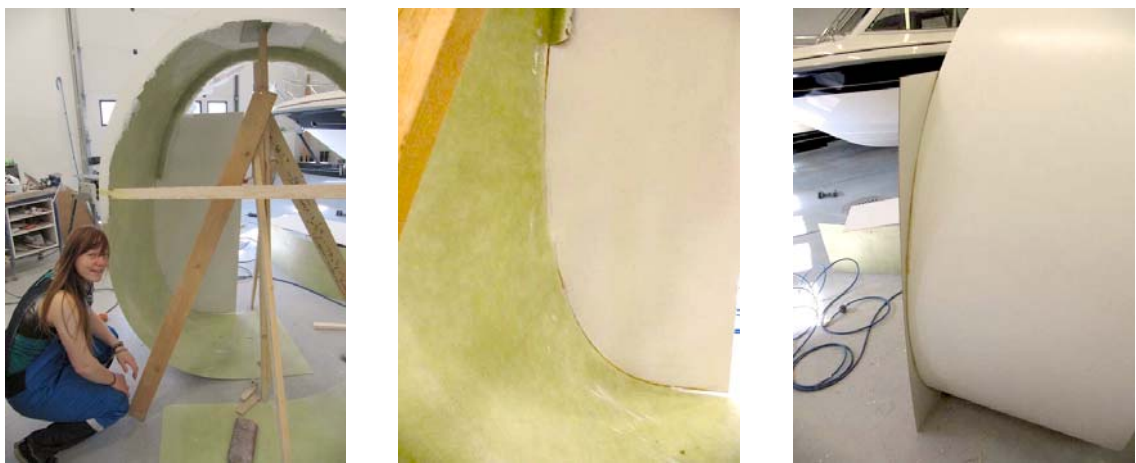
Simplicity has always been my number one design priority, followed closely by sustainability. In the case of “The MoROLL” that meant that I wanted to use as little as material as possible, thus trying to avoid a frame. The same was true for the shape: one form, one piece, one function. At the same time, it had to be stable, durable, and easy and obvious to use, with low or no maintenance. Sustainability means the ability to endure, support, and maintain⁶⁹. Making the chair out of environmentally friendly materials, sustainable resources, or even recycled and/or recyclable materials was one focus of sustainability. But the bigger responsibility I felt as a designer was towards creating a design that does not break, which satisfies the needs of the user, and is timeless. Fulfilling these criteria would ensure sustainability, because it would not have to be replaced within its lifespan. For the public sector, this is a valuable asset promising sensible investment. For the user, it promises a general, positive, user-friendly change in the furnishing of public spaces, thus an increase in quality of life, with new possibilities added to everyday surroundings and habits.

With that in mind, I went about imagining, assuming, assimilating, and imitating how it should and would feel to sit in “The MoROLL”.

⁶⁹ New Oxford American Dictionary, 2011, <http://en.wikipedia.org/wiki/Sustainability>, 12.11.2011



With Emmi's help, I was able to convince Paavo to reconsider certain options in manufacturing. Not finishing fast was our object, but getting it right. It had to be done right, as every step we took now was final. As flexible as the material fiberglass and the process of laminating it are, once cured, it becomes solid as a rock, and cannot be fixed or altered in position or curvature. Cutting away, or adding are the only ways of altering products made of fiberglass. Together, we tried to assume sitting positions, moving the loose ends of "The MoROLL" around, retaining certain position we deemed appropriate with led weights. Not yet satisfied, we used a bright halogen lamp to throw a shadow on the wall of one of us sitting, tracing it with pencil on fiberboard. In addition, I assumed certain sitting positions, slouching against the wall and making pencil marks on the wall and floor to come up with comparable data in centimeters.



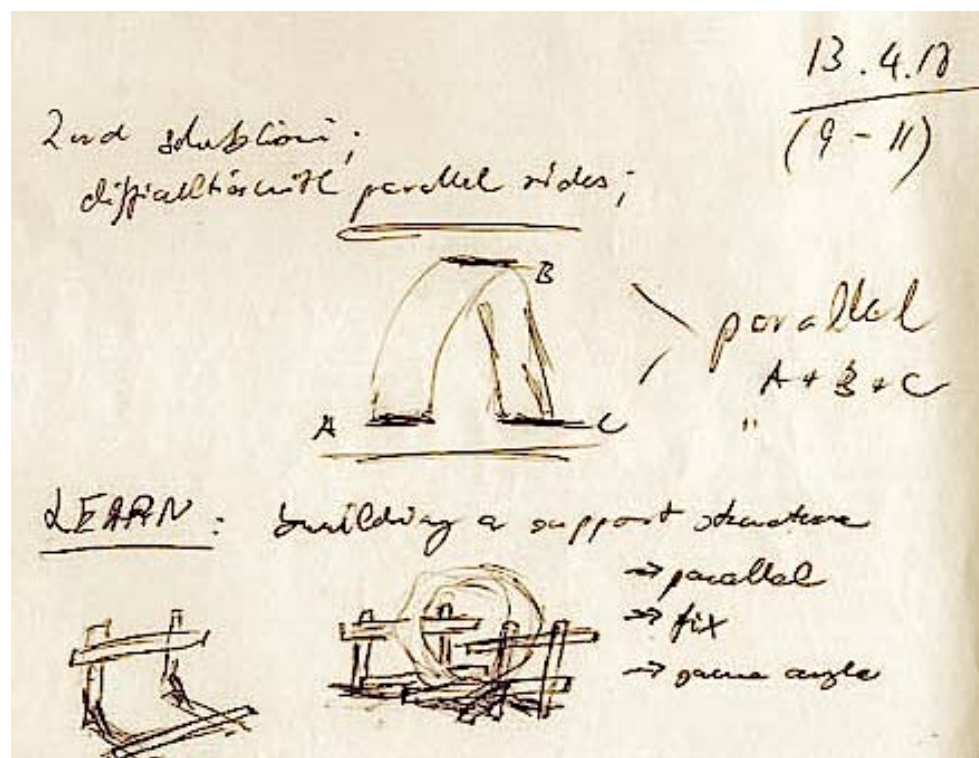
Comfort and communication were next on my list of design priorities. I would ask myself:

- How would I sit, when I would lean back comfortably to rest?
- How much is too much, when does my back hurt?
- Do I sit upright enough to talk to a person sitting across from me?
- Would I still be able to read a newspaper or a book?
- Could I work on a laptop?
- Could I get in and out of that sitting position by myself, without help?

I would measure the area where my upper back would touch the wall, and its distance to the floor. I also would measure the area where my lower back would touch the ground, and its distance to the wall. I would measure Emmi's sitting positions as well, taking her size and comfort into account. As a girl of average size, she was about a head shorter than me. This way, I would create data that

I could compare to our assumptions of comfortable sitting positions inside “The MoROLL”. As it was not stable yet, we could only carefully lean against it while sitting inside. Only gentle approaches without adding body weight to any part of the construction were possible. A comfortable sitting position could only be achieved hypothetical in that stage of development.

After several hours of trying, testing, and reconsidering, we were satisfied that we could risk gluing fiberboard to one side of the bottom part of the loop, which position we had marked with pencil on the floor, and fixed with weights so it would not move during the gluing process. We glued the template to the fiberglass with hot-glue, thus arresting it in its future position of curvature and angle. This was the point of no return. Right after, Paavo added strips of fiberglass, temporarily connecting the fiberboard with “The MoROLL”, and creating the same rim as we had done before on the upper part. Gel coat was applied as soon as it had cured. The main curve, the “upside-down egg” was in place. Now, we had to copy it for the other sides, making sure that the sitting planes ran parallel.



To keep the sitting planes and the foot rests parallel to each other turned out to be more difficult than anticipated. At this point, I would have liked to manufacture a wooden frame around "The MoROLL". It would have kept the outsides parallel, and would have guaranteed symmetry of the construction. It also would have allowed me to fix the structure temporarily, to stabilize it from the outside, so we could confidently and comfortably apply the sandwich layers inside. Paavo was not necessarily against it, but his main priority was speed, and this proposal threatened to slow him down immensely. My lack of Finnish knowledge did not help me to make my case. My suggestion for a proper and safe solution was overrun by hectic activity. I had no choice but to follow suit.

His workshop, his rules, I told myself, while I tried to remain calm, humble, and grateful.

6.5 Clouds On The Horizon

This was not our first time of disagreement, but the first time that frustration settled in, and I realized, although it was my project, that I was not in charge within this setting. It frightened me, as I could not voice any objection or concern properly. Suddenly, I had doubts about the proper outcome. A faulty or crooked “MoROLL” was of no use, and might as well not have been built at all. My design was clear, simple, and obvious. There was no room for error, nowhere to hide a design flaw. Any fault would be visible, and it did not matter whether accident, planning, budget, execution, or difference in opinion or language caused it. And it was my responsibility to ensure the best possible outcome. As grateful as I was for Paavo’s support, I had to insist on being heard. And it would not be easy, especially when I did not have anybody with me who would speak Finnish, or somebody who would, but who was not taking my objection seriously, or was not taken serious by Paavo.

I was not encountering difficulties caused by difference in language alone, but by cultural differences as well. I realized that I was not taken serious as a person, a designer, or a builder, because I was a student, and therefore not to be taken serious in professional circles. I did encounter this within my own school, and when reaching out in my research for production possibilities for “The MoROLL”. The school itself had a local esteem and credibility, and

whenever a school official entered the scene, doors opened, and opportunities and support would become available. Paavo was inclined to help me because he liked the challenge, but also because of the prestige of my school, and the little push by his main contractor, AMT boats. For myself, I had no credibility, and seemingly no chance of establishing one. The appraisal of my merit had nothing to do with my project, my design, or the validity of my idea. But it had everything to do with social standards. As a foreign student, I was an outsider to the society I was in, therefore exempted from social status.

Cultural differences and its resulting difficulties arose from me being a foreigner. Research has shown that even with the appropriate degrees and adequate language skills in Finnish, foreigners have a hard time establishing themselves in Finland⁷⁰. Apart from the cultural and language differences, Paavo and me connected in the design, and through our work. I am sure that I was as difficult to understand for him, as he was for me. Although was already stressful, and unpredictable, we tried to make the best of it. I tried to not take his support or involvement for granted, or to put it into question. Neither did I present my project or myself in a disrespectful way. I made sure to always ask friendly and politely, being concerned for his schedule and capacity.

I was dependant on him for his workshop, and his expertise. For more than one reason, it was difficult to reach a common understanding with him. This prompted me to keep looking for alternatives, no matter how far I would get with

⁷⁰ EVA Report "Talent available - Tapping the Expat Talent Pool", by Aira Vehaskari, <http://www.eva.fi/en/julkaisut/talent-available-osaamista-tarjolla/2838/>, 20.10.2010

the production of the prototype of “The MoROLL”. But I was not looking for an easier way. The issues I encountered were not specific to any one project, person, or location. Moving forward meant also that I had to accept the conditions as they presented themselves at this point, and to make the best of it, to salvage what could be used, and to leave the rest alone. Staying motivated was a challenge, as I was the only one with the vision for this project, the deadline, and the responsibility. Yet, my energy, instead of flowing into creativity and productivity, would be drained by an environment that would not or could not accommodate my mission. Frustration with people and the situation I was in, and anger resulting from not understanding the actions or decisions of others, de-motivated me more than any setback or failure in the work process. I arranged for a meeting with other creative professionals, searching shelter from the storm.

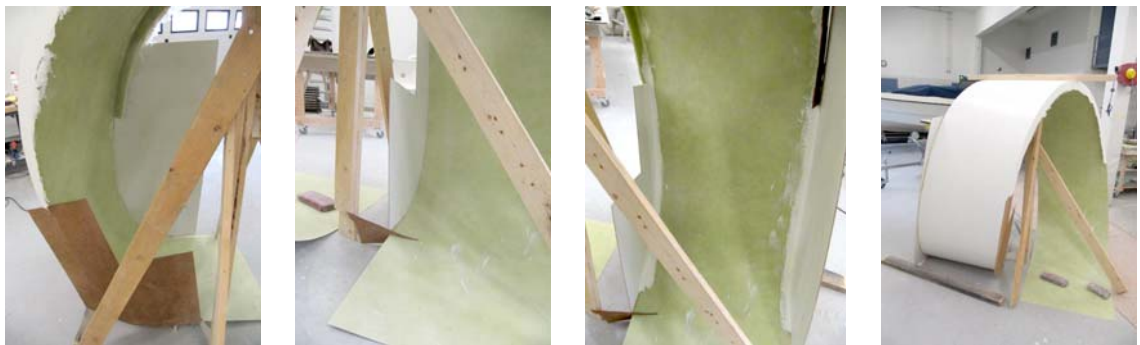
In mid-April, I met with Maailmankylä⁷¹, and their representatives Samuli Taponen and Ilkka Hynynen at their offices in downtown Joensuu. Samuli Taponen had worked for fiberglass manufacturer Joptek before, and was then working for the business development agency PIKES. Ilkka Hynynen was an entrepreneurial mentor, engaging in various businesses, among them Global Village and Future Missions. Both agreed to meet me based upon information I had sent them, presenting “The MoROLL” concept and my future plans to develop that concept. In our two-hour meeting, they approved of my ideas as a global commodity. It became clear that most of my ideas, including “The

⁷¹ www.maailmankyla.fi, 20.05.2010

MoROLL”, were too big for the small town that I was living and studying in. I understood that I would not produce “The MoROLL” for this local audience, but for a worldwide market. Locals were not to blame that they could not understand my vision or my mission. This was a much-needed boost to my confidence. I felt encouraged to move on, and to strengthen my efforts to build a functional and presentable prototype.

With a change of attitude, I was back at Paavo’s workshop on the very next day. I had no time for sentiments or resentments. I had a chair to build, like it or not. I would rather have liked everybody involved to be happy and excited. But it was neither my job, nor my responsibility to make or keep anybody happy. I was expressing my appreciation daily. I helped, and offered to help Paavo wherever and whenever I could, and gave a hand whenever I saw that a hand was needed. I cleaned the workshop at the end of every day, handled tools, materials and equipment with care and respect. I brought coffee and doughnuts for the afternoon coffee break, and washed the dishes and cleaned the kitchen before I left in the evening. I even offered to mow the lawn around his house, and to clean up the yard around the workshop. He helped me out such a great deal, I wanted to express it in any form I could. Although he made it look like it did not mean a lot to him, it sure meant a lot to me. As I did not have any money, I was trying to be of service. Sometimes, but very rarely, did he take me up on my offers. There were days were he was happy to have me there, joking around, and leaving the keys to his workshop for me to close up after I would be done before the weekend. On other days, he would let me use his van to get material I needed for “The MoROLL”. Every day, without exception, customers

would be curious and interested in “The MoROLL”, which made Paavo proud to be part of such a project, and he would show it.



And yet, I would end up with an uneasy feeling, thinking that my chair is in the way. To clarify my notions, I had asked a Finnish friend of mine to act as a communicator between Paavo and me, to clear whatever misunderstanding we might have. According to Paavo’s statement, there was nothing wrong with my project, or me.

6.6 Seat Cushions

We spent another day of work on the second bottom part of the loop. We stabilized it by adding fiberboard templates to the sides, fixating them with hot glue, applied fiberglass strips on the inside with resin, and then covered it with gel coat. I was grading the edges slightly, making them even. I left his workshop for the day to do research on seat covers for “The MoROLL”. After all, not only did I need to cushion the seat so people could sit comfortable, but also to signal to users where and how to sit, and to prevent them from sliding downwards in

an otherwise slick chair. The material for the seat cover had to be visually pleasing, promising sitting comfort and enhancing the design as a whole. It had to appeal to senses and sensibilities of both the designer, and the users.



Originally, my idea was to make the chair out of laminated plywood, with a seat cover made of woolen felt, soft enough to cushion, hard enough to allow for comfortable positioning. I estimated a thickness of 30-50 mm, and an amount of 6 m² to cover the whole inside of the chair. My first research attempts in the Internet led me to Chinese websites, promising wholesale prices on big orders, especially when searching for “industrial felt”. I realized, that I had to learn about the material first, if I was to come up with some tangible information. What I needed was a product overview first, if possible even samples, so I could touch and feel the quality. Most teachers of my school, and specialists outside did not understand the word English word “felt”. To do research, I had to make sure that people understood what I was looking for. “Huopa” was the

Finnish word for “felt”. I came to understand that there is a difference in both price and quality between handmade felt (“käsintehty huopa”), and technical felt (“tekniset villahuovat”). Both Aino Lampio, a teacher of textile design at NKUAS, and Pirkko Levula, Sales Director at Koskenpään Huopatehdas Oy⁷² were helping my understanding in that matter. I learned about the density of felt in grams per m³, explained my need, and asked for samples to be sent. Until then, the options for materials for the seat covers remained wide open.

The same day, I had a follow-up meeting scheduled with Samuli Taponen of PIKES, and Ilkka Hynynen of Future Missions. We discussed proceedings and marketing possibilities for “The MoROLL” concept. We would consider possible sponsors for production, and possible buyers of the chair itself. We brainstormed on how to upgrade a simple sitting experience with incorporated lights, accessories, flat-screen television sets, integrated loudspeakers, and added paint. They offered some of their own business contacts to me as a way to create interest in “The MoROLL”. If architects of large spaces, like Trevor Harris and Henu Kjisik⁷³, and designers of large objects, like Vertti Kivi⁷⁴, would utilize my design concept, we all could benefit from it. After much discussion and thought, I did not see a realistic possibility for cooperation at this point in time. I would not have had a product to offer, not before I have a solid prototype, capable of proving its function and attraction.

⁷² http://www.koskenpaanhuopatehdas.fi/eng_yhteystiedot.html, 20.08.2010

⁷³ <http://www.h-k.fi/>, 19.09.2011

⁷⁴ http://www.dsign.fi/index_eng.html#/info/contact, 19.09.2011

Being in the 6th semester of an 8-semester design program, I was still a full-time student, with classes, tests, assignments, and homework to attend to. But I was making this project my priority, and worked on it every day. Some days, I had only little time, but I used every spare hour to forward the project. Sometimes, I tried to expedite progress by preparing a work step, or cleaning up after a completed one. Other times, I took care of the small steps in between. This time, I worked with Paavo only shortly in the morning. We prepared the chair for lamination. We stabilized the loop by screwing a wooden beam directly into the sides of the loop, spanning its diameter. This way we would insure that it stayed stable while working on it, and both sides were similar. While Paavo would take care of laminating the inside of the top of the loop, I would construct both footrests over the next few days in the school's workshop.

6.7 Making Ends Meet

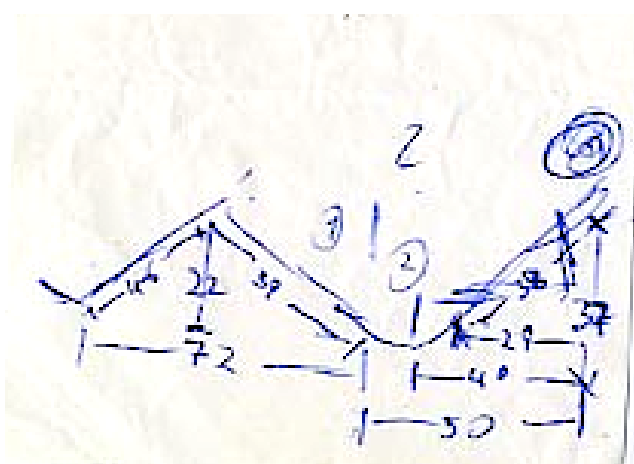
To stay out of Paavo's way, I intended to construct a mold for both ends of the chair at our school's workshop. I needed a 1:1 template with exact measurements. For that purpose, I transferred the outlines of the chair on sheets of masking paper, which I had spread out on the floor. I marked its position and its measurements with pencil on the paper. Then, I would add the outlines of me sitting in the chair, and of where my backside and my legs would touch the ground. That way, I was able to project the size of the chair's footrests. Having it all on paper, I could take a template of the ground layout of the chair with me to the school's workshop. I had some testing to do, and did not want to waste Paavo's time and space. I copied the vertical layout as well,

on fiberboard, to estimate the incline and the radius. The footrest had to be constructed to flawlessly merge into the already shaped backrest, as if drawn in one motion, and built in one mold. Before returning to the school's workshop, we turned "The MoROLL" upside down, so that the next layer of Divinycil could be applied with ease on the inside of the top of the loop.



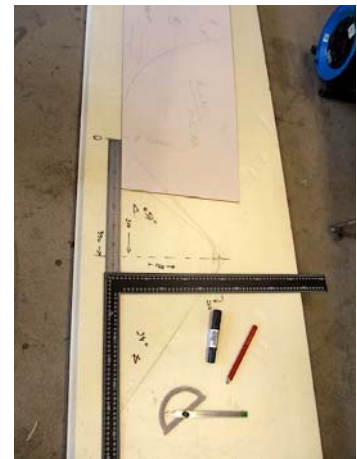
At NKUAS's workshop, I started with assimilating comfortable slouching sitting positions, similar to those desired in "The MoROLL". The user's back was to be round when sitting, his knees elevated and supported in a slightly angled position. His lower thighs and feet were to rest on a down slope. I did research in the school's library, looking for empirical data. But standard measurements

for how to sit comfortably in a sofa or a recliner were not available. Subsequently, I did my own research, leaning back in chairs and sofas, and sitting on the floor, slouching comfortably against the wall. Whenever I found myself in a comfortable position over the next few days, I would take a tape measurer out of my pocket, and try to quantify my experience. Where my upper back touched the wall, I measured the distance to the ground. I also measured the distance of my buttocks, and of my heels to the wall. Assuming a potentially comfortable sitting position on a cold and hard concrete floor, while at the same time making pencil marks on the ground, led to some data, which was still too irregular to be useful. The same positions could not be repeated producing the same result.

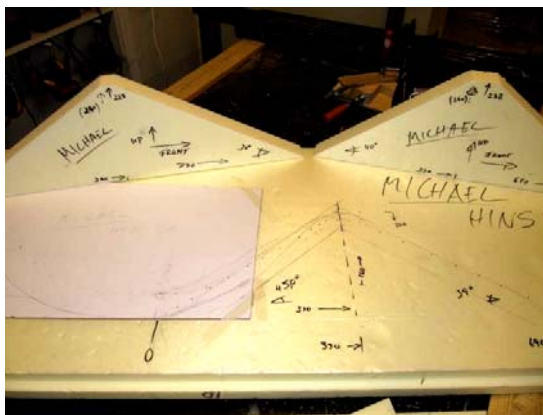


I had to have reliable data, so I changed my tactics. I outlined my whole body's profile, from my shoulders down. "The MoROLL" being round, I would sit in it with a round, hopefully comfortable back. I took the fiberboard templates I had

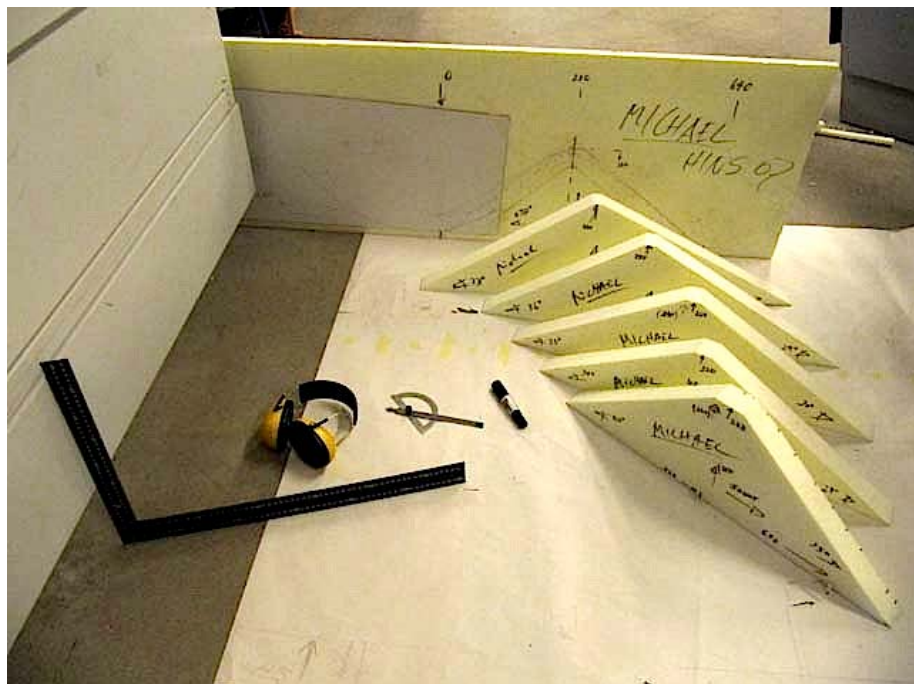
made at Paavo's, and laid them on the floor. Those were to guide me to assume the fitting position with my back. I added for the footrest a 30-mm thick piece of hard Styrofoam, which I intended to use as template. I put it on the floor, and laid on it sideways, my upper torso bending according to the lines on the fiberboard template. My legs were bent, while I was imagining sitting in a comfortable position. I had help from fellow students watching and correcting my position, but also looking at me with bewilderment and amusement. I asked them to outline the position of my legs on the Styrofoam.



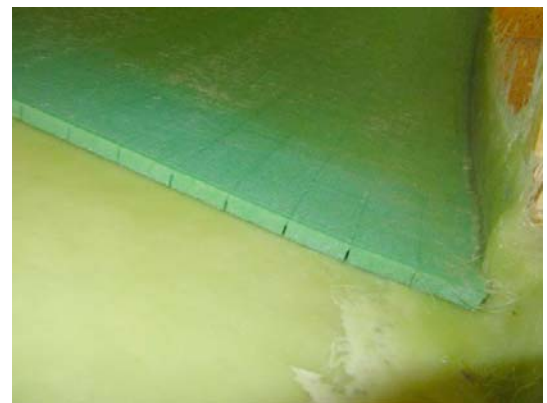
Once I had the outlines on the foam, I cut it out, and tested the new template by sitting on the floor, leaning against the wall, and resting my feet on the foam template.



I repeated the whole procedure, producing several templates with different angles, heights, and lengths. I would only keep the templates that supported a relaxed sitting position. The higher the knees were raised, the shorter the measurement was for the base of the footrest. After several days, I ended up with five different templates, each a possible option to give shape to the foot rests of the chair.



Back at Paavo's workshop, he had laminated Divinycil to the inside of the roof of "The MoROLL". Although it was only the middle layer of a three-layer sandwich structure, it already provided massive stability. Divinycil acts like a sponge, and sucks up the applied resin. Once cured, it becomes solid and hard in the shape given. I could see why it is used to build boats. It provides strength and stability without adding too much weight. And it can be laminated into almost any form.



We set out to add the missing length in the fiberglass laminate for the footrests. We had an estimated need of an additional length of 100 cm per side, with 80 cm wide. Paavo would apply gel coat with a paintbrush onto a smooth table, covering the area of 2 x 100 x 80 cm. After a short while, he would add a layer of fiberglass, and impregnate it with resin. Once dry and hardened, the bond of fiberglass and resin separated easily from the table, leaving the side of the gel coat smooth, mirroring the table surface. The other side would be still rough, allowing for the addition of more layers.





To make a decision on the right-sized template for the footrests, I tested all five templates one more time, after letting it rest for two days. I decided on a flatter version, where the knees would not be raised too high, preventing the user from curling his back too much. Because the “MoROLL” up to that point was already shaped after my body’s dimensions, I could not use any test person other than myself. The introduction of new body proportions different from my own would have thrown off the proportion of the design as a whole. Although I knew that this prototype would not fit everybody, I chose the right proportions within the size of this prototype over trying to please everybody with a universal size. At

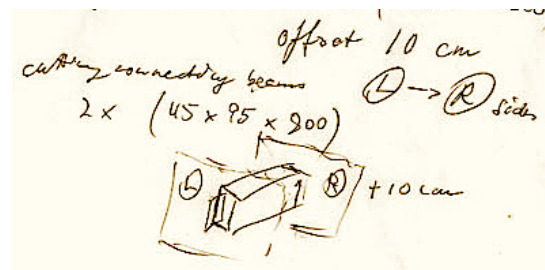
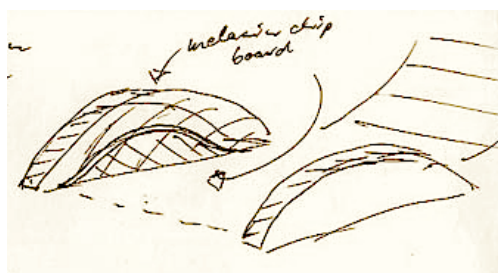
least, it would fit one body size well, and other body sizes could be considered in the product development after the prototype stage.

The molds for the footrests had to be sturdy. Bending the fiberglass caused tension, which had to be absorbed by the mold. I made the sides of the molds from Melamine Faced Chip (MFC) board⁷⁵. Melamine is a chemical used in combination with formaldehyde, to produce a plastic like glue and coat. It gives the woodchips inside the board connection, and outside a plastic like, smooth and shiny surface. We needed this surface on the insides of the molds so that any glue or resin could be removed easily. First, we would bend the fiberglass, and attach it with hot glue, to keep it in position. Later on, we would apply gel coat to the sides, and laminate fiberglass directly onto the MFC board, adding corners for stabilization. The smooth surface of the mold would guarantee a smooth surface of its positive counterpart, and an easy detachment from each other.

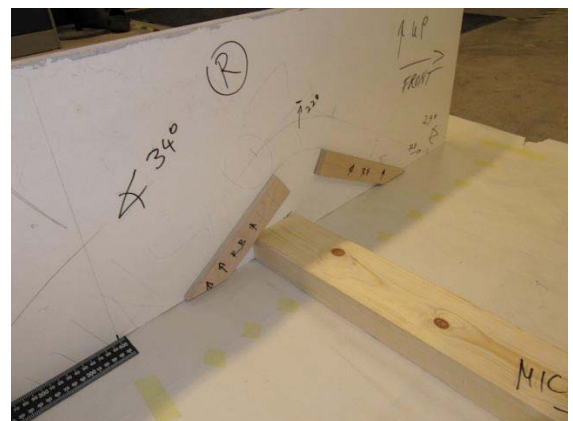
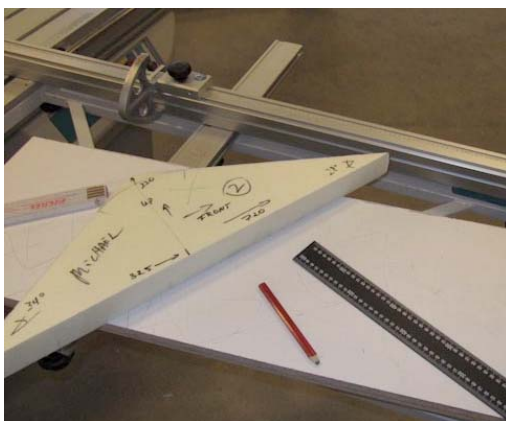
Still on a zero budget, I had to come up with cost-free solutions. Trash bins were my main resources for materials. Throwaways from some interior remodeling supplied me with the material I needed. MFC board is often used to build shelves, desks, or separation walls in offices. Though damaged, I managed to salvage enough for my needs. After cutting away broken corners, I recycled the surfaces, and cut them into four equal pieces, 22 x 1500 x 300 mm each. Those were to be the sides of the mold. They had to be at a distance of

⁷⁵ <http://en.wikipedia.org/wiki/Melamine>, <http://www.wisegeek.com/m/what-is-melamine-chipboard.htm>, 20.08.2011

80 cm from each other, equal to the width of “The MoROLL”. While being parallel, they had to be 10 cm offset opposite of each other, to be in line with the helix of the chair.

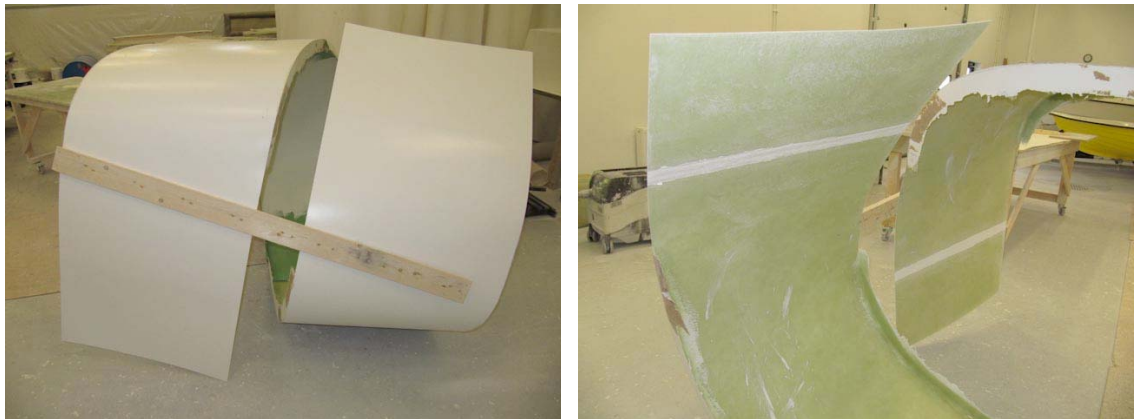


I prepared each MFC board separately, marking the side it should go on. I used the Styrofoam template to determine the right position of plywood pieces on the insides of the MFC boards. These were attachment points for the footrest, where we would screw the fiberglass temporarily into position. They had to supply support enough to catch the tension of the bent fiberglass until its lamination had cured. I nailed them onto the MFC board with a staple gun. The curve at the highest point of the footrest, where the user's knee angles, would be determined by the distance of those plywood pieces, their angle, and the thickness of the fiberglass and its bending properties. To ensure that the whole construction would remain in a right angle, and parallel to the floor, I screwed a wooden beam 45 x 95 x 800 mm through the MFC boards to connect both sides.



When I came back to his workshop a few days later, Paavo had already laminated the strips of fiberglass to the bottom ends of “The MoROLL”. He had screwed a wooden support beam to the bottom of the chair, to stabilize both ends of the roll, and to keep them parallel to each other, and in position. The strengthening second layer of Divinycil had not been applied yet, which made

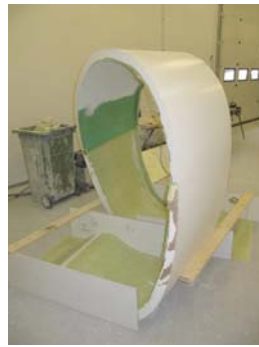
them flexible and fragile. Paavo had turned the seat on its side, which allowed him easier access to the parts he was working on.



To install the molds I had made for the footrests, we put the chair back into its upright position. The parts of “The MoROLL” touching the ground would run parallel to each other in a distance of 200 mm. The molds had to be placed exactly mirroring each other in the opposite direction, and to be secured in their position. The molds fit the chair perfectly, on the millimeter, like custom-made shoes. We arrested them in their position with the help of a wooden beam.



Then we pushed the fiberglass strip into its place, and fixated it with hot glue unto the side of the mold. Once cooled down, the glue would provide a temporary connection between the MFC board and the fiberglass, just long enough so we could apply gel coat into the corners, add strips of fiberglass for the stabilizing rim, and soak it with resin. After curing, the rim would be stiff enough to keep the footrests in their intended shape, and the molds could be removed.







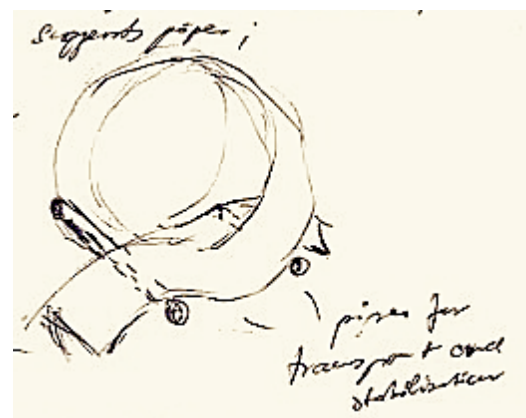
6.8 Damage Control

“The MoROLL” was making good progress, and the deadline of the opening day of Habitare on September 1, 2010, was not threateningly close. I was feeling grateful and accomplished for what we had achieved so far. At the same time, I got a feeling of uneasiness while at the workshop, being insecure and anxious over having to push for completion. To make sure that our arrangement still agrees with Paavo, at that time the sole provider and facilitator of support for my design dreams, I asked my girlfriend to come along as an interpreter for a day. I felt the need to make sure that no misunderstandings had accrued. I made it very clear that I appreciated everything he had done so far. I exclaimed that I am very satisfied with the progress and the outcome so far, and that I could not have done it without him. But I also wanted and needed to know if I could count on him to proceed with the project, and that he would help me to finish it. Due to our language differences, and my own insecurities, I was never

quite sure of that. Better to control the situation now, than having an uncontrollable one causing serious damage later.

As work had not processed as swiftly as it could have, hampered by many interruptions, I asked him if we could continue with laminating. I had realized over the recent past working at his workshop, that “The MoROLL” is not a big project compared to what he is used to dealing with on a daily basis. Besides building and fixing larger boats and yachts, he also was putting out a high volume of custom-made parts every day. As late-April was the off-season for his business, he easily could work in the daily steps necessary to progress “The MoROLL”, if he wanted to. Working daily with fiberglass, resin, Divinycil, and gel coat on other projects, the leftovers from his daily work were enough to build “The MoROLL”. Furthermore, he was an accomplished and seasoned 20-year veteran in this craft. He knew all the steps to build my chair by heart. As he was working on many big and small fiberglass projects in various stages of completion simultaneously, he easily could add “The MoROLL” into his work process. I asked him to teach me by letting me help him doing his work. Whenever my project needed a new layer of fiberglass, he would add it when he was laminating a part of another project. This would save time, and material; resin had to be mixed only once; leftovers, which would be thrown out otherwise, would be worked into my project. My project was a small project on the side for him, costing him little investment of thought, time, materials, and effort.

In answer to my worries, Paavo did not address my trepidations, but rather suggested to incorporate metal tubes into the design, to connect and stabilize the foot ends of the chair, and to aid in the transport. Although I gave his suggestion some thought, I was trying to finish the design as planned, without any frame. Visible metal pipes would add a different design paraphrase to the design language I had used so far. It would be added to solve a technical problem with the design, while visually amplifying a design flaw. I had not made a compromise up to that point, and I was determined to not make one now. There would be an elegant solution for that problem, but not metal pipes. Another issue he concerned himself with that day was the shape of the ending of the footrests. We sketched several versions, and decided to simply round the endings off on both the rim and the sitting surface.

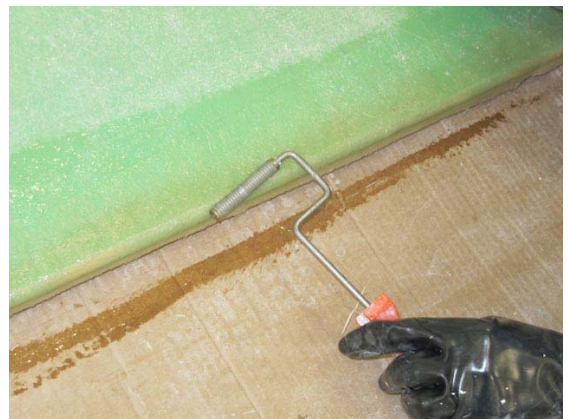




The next day, we were back in business, and back to business-as-usual. “The MoROLL” began to show progress. The layer of Divinycil, the second layer in the three-layer sandwich structure, now covered the whole length of the chair. The third layer, another layer of fiberglass, was added with resin, and had cured. The sitting surface was hard as a rock, and the whole structure of the spiral seat was stable. The ceiling of the roof was already covered with gel coat, a sealant for the fiberglass, giving it a plain and glossy finish. Gel coat⁷⁶ is a durable epoxy-based finish, mixed by hand from polyester powder and resin, to the amount and density needed. It is applied with rollers and paintbrushes, and cures within ten to thirty minutes, depending on mixture and room temperature. We were able to remove the molds of the footrests from the chair without difficulties. With that, the raw shape of the chair was completed. This was an exciting, yet anxious moment. But the result was very satisfying. We trimmed

⁷⁶ http://en.wikipedia.org/wiki/Gel_coat, 20.08.2010

the excess length of the laminate with a circular saw, and laminated the ends shut, rounding them off. After completing the gel coat finish on the inside, we had to wait for it to dry. This was an opportunity to reflect. We compared the model to the prototype, held it into perspective, looked from the distance, and went up close. We were pleased with our result.





7 COMPLETION

7.1 Intuition And Instincts

We had produced a life-sized prototype of an idea of mine, which had existed mainly in my head up unto this point. There were no measurements, plans, drawings, computer models, or any other directives to go by than my intuition, my instincts, and my feelings. I knew intuitively how it had to look like. My instincts helped me to make the right decisions and choices, to talk to the right people, to trust and to follow certain leads, while I would abandon others. And most importantly, I knew how it had to feel like when sitting inside. I knew this already before I had built the model. As a matter of fact, that very feeling was what prompted me to pursue this project, which started by building a model out of aluminum foil. The shape had not changed since. That feeling I was going by was what I was missing when I would sit in public places, on market squares, in airports, and in malls. Nowhere would there be shelter or a sphere for personal privacy offered, let alone confidential or intimate spaces, making real communication or personal connection impossible. Personal space was missing everywhere. Yet, when I took time to observe, I would see people crowding in places that would offer at least one of these attributes. When observing myself, I would find myself sitting under a parasol, even when cloudy, even when inside. I would find people sitting against something or under something, and

where there is one person sitting, others start to sit close by⁷⁷. Communication starts with coming together. A big essential need in a big over populated world, caused by a big lack of human centered design thinking. Seeing “The MoROLL” coming into being, I was pleased. I could see and feel that my instincts had led me in the right direction. Human-centered design thinking responded to human needs through solving a design problem.

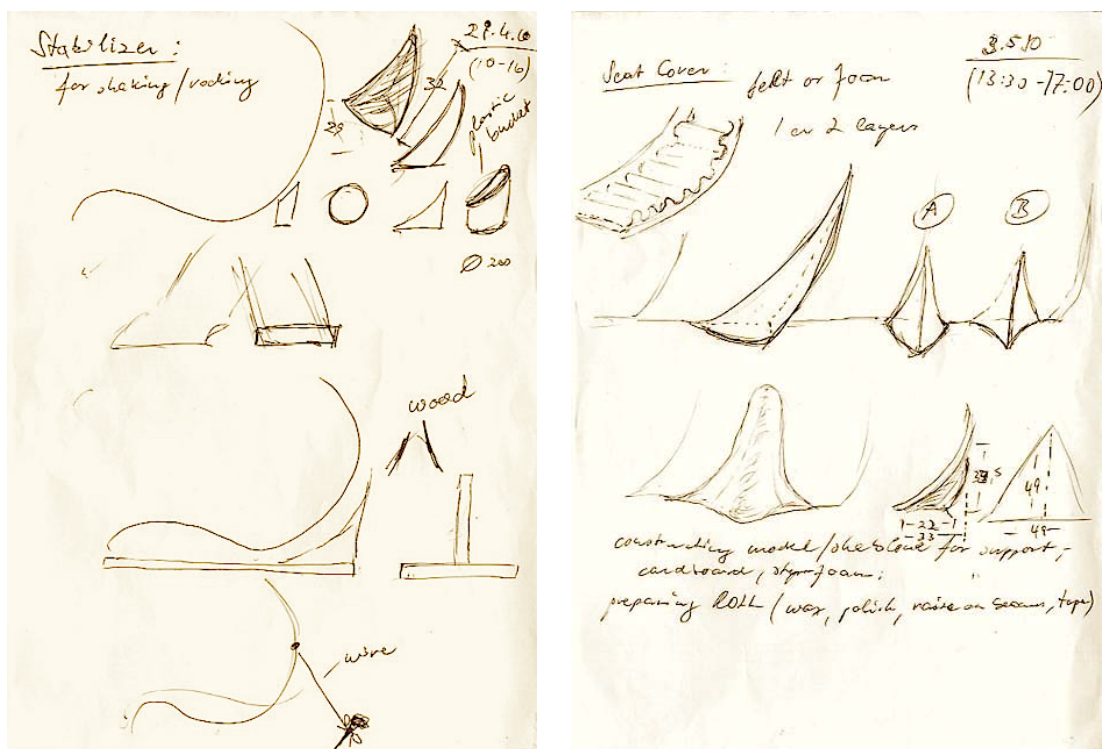
When sitting in the chair, I experienced exactly what I was hoping I would: my own personal private space. And, as a two-seater, it created a communicative space as well. The distance of the users sitting across from each other was ideal, not too close to feel uncomfortable, and not too far away to not be able to talk to each other. The curvature of the backrest was ideal, providing support, but allowing, almost forcing the user into laid-back relaxation. The footrests were in the right position, allowing tall and shorter people to sit comfortably. At this point, this still was not the ultimate sitting position. I had to construct both the footrests and the backrests larger than the actual sitting surface, leaving room for the thickness of the seat’s upholstery. So far, so (very) good!

But there was a problem with the chair’s performance. When getting into the chair, it bounced. It was a stable construction, but it acted like a spring. Fiberglass stays elastic, even in a sandwich structure. Even closed bodies made from fiberglass, like liquid tanks, and open bodies like boats vibrate, and bounce back on impact. In the case of “The MoROLL”, the person sitting down

⁷⁷ Finland seems to be an exception. Roman Schatz, 2005, *From Finland With Love*, pp. 13-15, Helsinki, WS Bookwell Oy

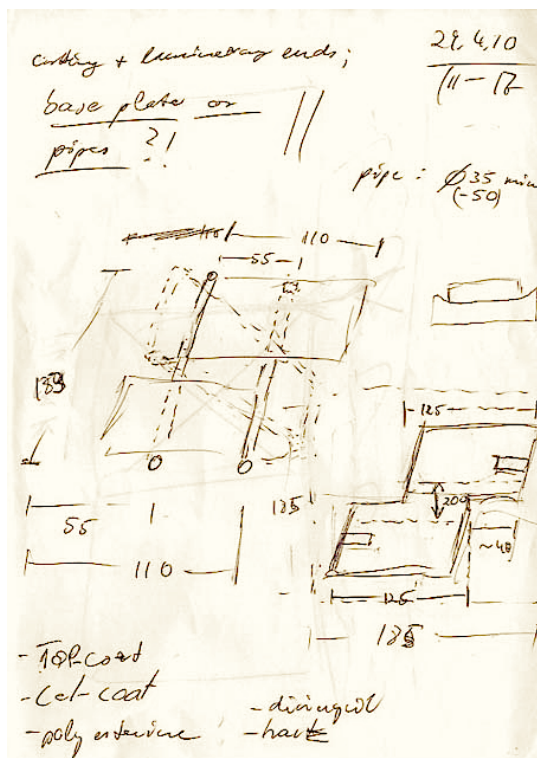
rocked back and forth for a little while. The movement was transmitted via the loop of the spiral to the other side, thus to the person sitting on the other side. This was a major design flaw, which had to be addressed immediately.

In that moment, I was scared, afraid I would not be able to solve this problem. I was angry with myself that I did not think of this before. Now I knew what was wrong with my design, that it was too simple to be true, I thought to myself. It took a while to let go of frustration and anger. Then I realized that I had thought of it before, but that I had taken a risk. While studying the design in its model form, I had a suspicion that this could happen. I was hoping that the rigidity of the material used in production would absorb this spring-coil-like action. But with the lightweight material I had chosen, and my insistence on a frameless construction, led to the situation at hand. I wanted to build it without compromises, and I had gotten that far. So I would find a solution, no matter what it took, and how long. And I would not give up my principles, or my design. Solutions were needed, good ones. Brainstorming, sketching, modeling, measuring, and trying out and testing all happened at once. I had to find out where exactly support was needed, and how. Soon I realized that very little was needed to stop the rocking motion. If it were arrested in the beginning, if it would be prevented from even starting, then no forces would have to be counteracted. A small object, comparable to a small wedge under a big wheel, was enough to prohibit a rocking motion from starting. But how to integrate a new object, no matter how small, in an already existing and, what I thought, complete design?



I did what I call “exploding my box”, which helped me to think outside the box. I thought of the most simple, the most complicated, and the most dingy solutions possible. Silly humor helped me to not take my design, my problem or myself too seriously. In this case, I tried to imagine how a big nail in the ground, with a little string spanning to “The MoROLL”, would hold it all into place. Although joking, but it clarified that the solution had to come from underneath the chair. The simplest serious solution I could think of would have been a short pole or pipe coming from the ground to the lower end of the backrest. Paavo suggested laminating the inside of a small paint bucket, using it as a mold for a hollow cylinder that could be added to the backrest. After curing, we would break the

bucket away. This would have given us a round, cylindrical support with a smooth surface. Other design solutions included a metal brace around the outside of the whole loop to stabilize the chair. Similarly, connecting pipes between the backrest and the opposing footrest were thought of, in combination with a hollow base, which would incorporate and hide the connections. But I dismissed these ideas quickly as they resembled a frame. And “no frame” was one of my design principles for this project that I was not willing to give up.



While testing, thinking, and ideating, it became clear that sitting in the chair did not produce any sideways forces. Those were already well taken care of by the

design of the chair. Its base was wider than its height, similar to a catamaran, a boat with two hulks far apart from each other to avoid capsizing. Energy and movement were only transferred to the chair when getting in and out of it. This was motion going forward and backward only, not to the left or to the right. The device I needed to design had to stop this one-directional force. The design would not have to be wide, and probably not even very tall, but it had to have an exact fit. First trials were with a design shaped like an inverted “T”, but I realized soon that I could get rid of its wide base. Only the minimum was needed, an I-shape. I made models, first from cardboard, then from wood. I had solved the functional problem, but it still needed a form. Playing around with two of the cardboard templates I had made, fitting them to the back of the chair, revealed its design.

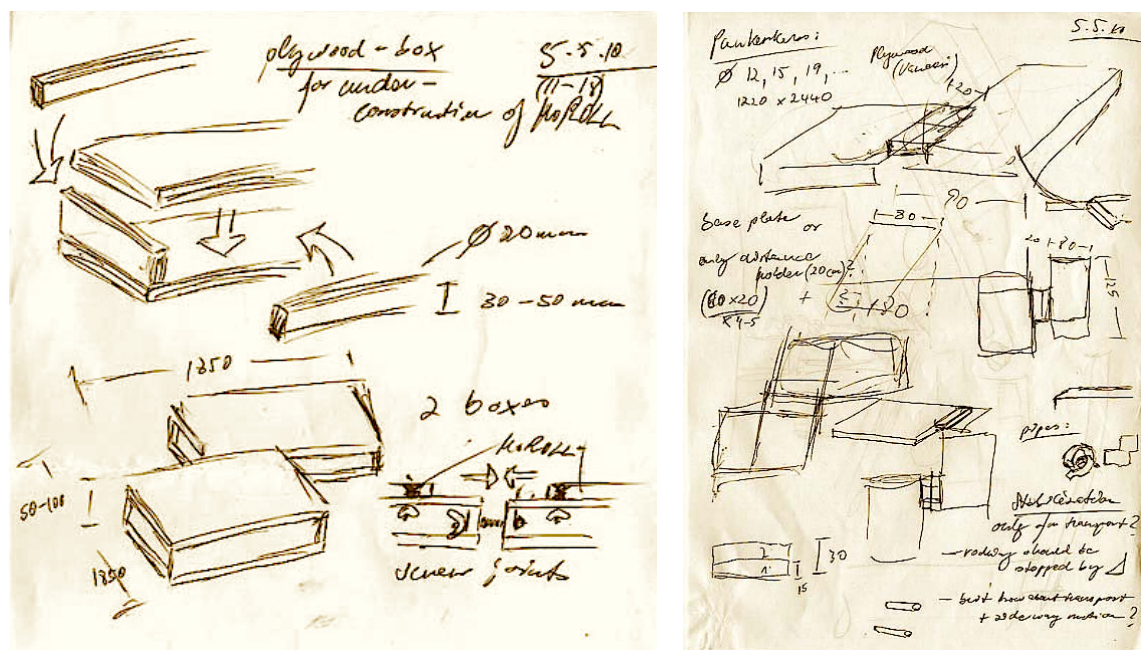


It still needed a three-dimensional shape, an identity. I felt that, although it would be only a small addition to the whole, that it would have to have its own identity, as strong as the whole, to be worthy to be added onto it. If it would not add to the design, it would take away from it. Form does not necessarily follow

function; it follows design. Design itself should always add to what already existed, enrich it, and not take away from it, make it less. Design details I would not treat any different. “The details are not the details. They make the design”⁷⁸. The answer would be in the design.

Still short of a solution, and not yet too confident in the function and performance of my new idea, I continued to give the design of a fundamental platform a thought. “The MoROLL” could be permanently attached to a wooden under-construction of a base frame, about 10 cm in height, which would help to fixate the chair into one position, prevent rocking motion, and aid in the transport of the chair. It also would add weight. Because of its lightweight construction, the chair would slide on a smooth floor, like wood or carpet. A base frame would arrest that problem. I made several drawings and sketches on the base layout and construction details.

⁷⁸ Charles Eames, American designer, 2009, *Never Use White Type on a Black Background*, p. 103, Amsterdam, BIS Publishers



It was the First of May, and a long holiday weekend had me thinking, looking for inspiration for the design of the added detail in the back of my chair. And sure enough, it came when I was not looking, and not thinking! I took a walk in my neighborhood, when I saw on the parking lot of a grocery store a 1967 Chevrolet Corvette Stingray. An icon of American car design, it had one design feature that always got me excited: a rounded back window. Similar to the 1971 Buick Riviera⁷⁹, an extra bulge was added, providing an optical waistline right down the middle of the back of the car, thus forcing the rest of the lines to accommodate that feature. This seemingly unnecessary design feature adds dynamic and movement to the car's design; it animates an otherwise inanimate

⁷⁹ <http://auto.howstuffworks.com/1971-1973-buick-riviera1.htm>

object. Besides that, there was no function for this form. Good design evokes human emotions. In the case of the Buick, it adds a slimming streamline to an otherwise bulky car. In the case of the Corvette⁸⁰ in front of me, I wanted to touch it, retrace its curves with my hands. I refrained from doing so when the owner approached the car. Polished as it was, he would not have liked my fingerprints all over the back of his shiny classic. If the proportions are right, attributes like sexy, classy, and teasing come to mind. I knew what I had to go after. I had the feeling I needed to connect with when working on the missing piece for my design. And I had a visual image thanks to a car enthusiast who took his “baby” out for the first spin of spring.



Right after that fateful weekend, I manufactured a model from Styrofoam, to get the proportions of the profile right, its height, length, and curvature. It had to relate to “The MoROLL” as a whole, and it had to assimilate its roundness, but translate it to a smaller scale. It had to become that special extra, which is good design in itself, yet makes the whole even better. After countless models, I

⁸⁰ <http://www.lastcorvette.com/>

found the right shape for the profile. I had the measurements and curvature of the x- and y-axes of this three-dimensional body. Then, I created the width and shape of its curve of this voluminous body around the z-axis. The only straight line I had to go by was the ground along the y-axis. Nothing could be measured, all the curves had to be assumed by modeling. To get the base for the curve along the z-axis, I attached two symmetrical pieces of cardboard with masking tape to the Styrofoam template, just thick enough to hold their own weight, but thin enough to bend along the backside of “The MoROLL”.



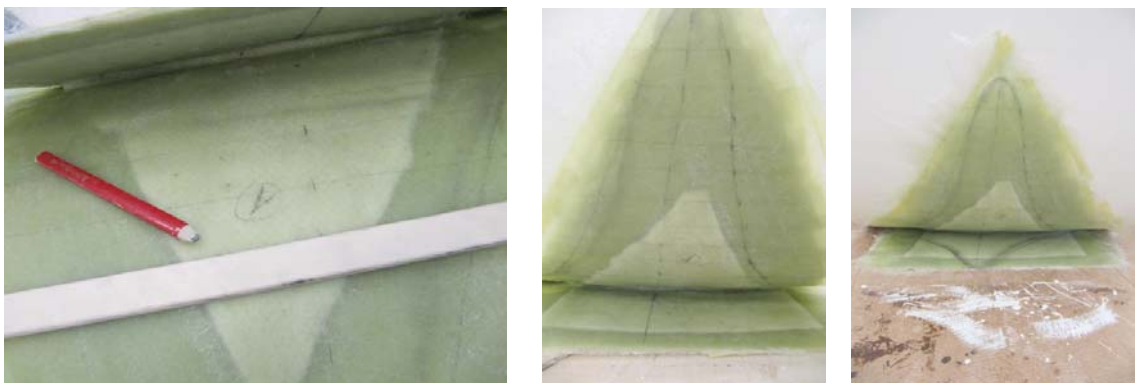
That helped me to understand the proportions of the wedge I was about to build. Although still in its development, I could already estimate its proportions, the height, width, and depth that the finished piece should not exceed. To keep the work in Paavo's workshop flowing, I masked the surfaces on both backsides of the chair with tape and plastic foil, to avoid any contamination of the already finished surface when laminating. I had sketched the approximate outlines of the wedges on the ground, so we could estimate their depth.



The surfaces, where the wedges would be attached, had to be prepared for an additional layer of fiberglass. But not that it would stick to it, but so that it would

come off easy. “The MoROLL” itself would be our mold for the ideal shape of the wedge. I raised the whole chair onto wooden beams, to keep it about 10 cm off the ground for better access. The wedge had to reach all the way under the chair, to be flush with the ground. I polished the areas that were to be laminated with wax, so the laminate would detach after curing. Then Paavo applied gel coat, followed by one layer of fiberglass. He would fold the fiberglass matt back, along the ground away from the chair. After curing, the wedges would have two of their four outside surfaces, the one on top touching the chair, and the one on the bottom touching the ground. As they were joined on one side, like a hinge, their position to each other was fixed. Now it would be easy to fill the wedges with foam, which could then be shaped.

We had created the wedges a little larger than actually needed, as to have excess material that could be cut away to form their ultimate shape. Now it was up to me to come up with their actual forms. I had to project their precise outline from the inside out. I started by drawing pencil lines in 5 cm offset to each other, parallel to the base line of the wedge. It gave me a grid, on which I could develop the final outline consistently. As the shape of the curve had to be off-center, following the side tilt of the chair, it could not be symmetrical.



Once I committed to the shapes of both the top and the bottom layers, Paavo cut off the excess material with a buzz saw. After finishing one side, I simply copied the shape to the other wedge, and we cut it. That day we had accomplished a lot. Although this solution to a design problem still had to prove itself, I had overcome a big challenge. My design had challenged me, and I dared to challenge it back. I added to it, I made it better, not only technically. It felt as if it would have gotten a personality now, something very unique.



7.2 Small Steps

The next step was to fill the inside of the wedges with foam. Following Paavo's advice, I bought spray polyurethane foam (SPF)⁸¹ as is commonly used in building construction for insulation, sealing, and installing of window- and doorframes. I took the wedges to the school's workshop, as the following production stage was about shaping and forming, a design step I needed to be undisturbed with. I needed to take my time, to stay focused, to be able to hear and obey my intuition. I ground the edges with an angle grinder, and smoothed the curves by hand with sandpaper. I then covered the outside surface of the wedges with thick plastic foil, sealing the edges tight with masking tape to prevent any contact with the SPF, which is extremely adhesive, and hardens within minutes. I filled the inside of the wedges, applying several layers of foam. In between, I had to pause, waiting for it to harden, while it would expand up to 20 times its volume.



⁸¹ http://www.sprayfoam.org/index.php?page_id=38, 07.08.2011



In an extra effort, I wanted to improve the communication with Paavo. Before returning to his workshop, I wrote the Finnish equivalent for some short phrases on a piece of paper. I wanted to push the project further, and I needed to make sure that he knew that he could count on my cooperation:

- “Voinko tehdä vielä jotain? Is there anything else for me to do?”
- “Tarvitsetko apua? Can I help you?”
- “Mitä seuraavaksi? What next?”
- “Lopetetaanko tältä päiväältä? Shall we finish for this day?”

I do not know why this language was so hard for me to learn, but I could not remember even short phrases like these. I kept this piece of paper in the chest pocket of my work uniform. Secretly, I would look at it before I would ask any of these questions, to make sure that I would get it right, and not make a fool of myself. Only later had it occurred to me that if I had learned phrases about

boats and fishing, I would have helped our working relationship much further along. But then, little did I know of the workings of a Finnish man's mind.

The work on the wedges proved difficult in the workshop of NKUAS. Working in a semi-professional environment, and with household quantities of materials, results were only half-measured. At the school, although equipped with plenty of room, secluded workshops, and a good ventilation system, I was prohibited to work with fiberglass inside. To continue to work, I had to take the wedges outside, working on the ground, and in the rain. The SPF was very expensive when bought in spray cans from a hardware store. I ran out of the limited amount I had bought, and was unable to finish the wedges. Returning to Paavo's workshop, we mixed the missing filler from polyurethane and resin in a bucket. Here, it was a matter of minutes and cents to get the job done. How easy and fast it could be done when in a professional environment!



The wedges took shape. The foam is in its consistency like dense Styrofoam. It can be formed effortlessly with a knife, a handsaw, and rough sandpaper. At this stage, cutting away too much would cause a problem. Thus, working at a slow pace, and checking and re-checking of their shapes by holding the wedges into their intended positions were imperative. Any mistake now meant a lot of mending later. After two hours of cutting and sanding, I was satisfied with the shapes. With a putty knife, Paavo applied a polyester-based filler to the open sides, directly onto the polyurethane foam. This closed the pores of the foam, making its surface hard and smooth. Sanding would still be required later, but for now, this putty had to harden for several hours to not crack.



I continued to work on the surface of the wedges, giving them their final shape before applying gel coat. It was all handwork, sanding the dried filler for several hours, first with rough, 80-grain sandpaper, then with 120-grain, then with 240-grain sandpaper. Then I would apply another thin layer of filler, and repeat the whole process, until the entire surface was even and smooth. Most of the time I

had my eyes closed while sanding, to feel the surface. I was not wearing any gloves. Although it was rough on my hands, it was necessary to get the shape right, to get the organic flow in the lines, the certain dynamic as I had witnessed in the back window of the Corvette Stingray. I instinctively knew how that had to feel in my hands. In the end, I would stroke gently the back of the wedges with my bare hands, and if there were just the slightest imperfection, I would carefully correct it.



The curing of that many layers of filler created tension on the surface, acting in the opposite direction to the curvature. The result was a gap between “The

MoROLL” and the wedges. Paavo’s experience and expertise in fiberglass production showed the way. With an angle grinder, he cut vertical slots into the surface, allowing the wedges to bend more. While holding the wedges under tension in their predetermined position, we filled those slots with putty. Thus, we prevented the tension to pull the wedges away from the chair.

In mid-May, I had to force my focus away from practical, hands-on, problem-solving design approach. I perceived it an unwelcome interruption to my flow⁸². I had to prepare a presentation of this project. Documented professional project work was part of my mandatory studies. At the same time, it would also be the start of my actual thesis work, as its scope and investment of time would easily cover both. Being in the workflow is very easy for me. Making notes, or taking photos is already an unwelcome interruption, let alone collecting and editing data, and making them presentable. I literally had to rip myself away from the work in progress, to allow time for such, in my mind, uncreative and unproductive, yet seemingly necessary vain and pretentious embellishment. I tried my best to clarify the incentive of this project, which was to get from a playful idea to a functioning prototype, from a two-dimensional depiction on paper for a design competition, to a three-dimensional, life-sized real object at an international furniture show. I prepared a presentation in writing, and a PowerPoint slide presentation with photos and graphics illustrating both process

⁸² “Flow - a state of heightened focus and immersion in activities such as art, play and work,” Mihaly Csikszentmihalyi, TED talks, February 2004, http://www.ted.com/talks/mihaly_csikszentmihalyi_on_flow.html, 26.09.2011; Mihaly Csikszentmihalyi, 1996, *Creativity: Flow and the Psychology of Discovery and Invention*, New York, Harper Perennial

and progress. Although I disliked the interruption, I welcomed that short intermission to reflect on the progress made, and the work that still laid ahead. But I was eager to get back to work. Now that we had cracked the stable outside surface of the wedges through insertion of slots on their backsides, we had to support the structure by yet another layer of fiberglass and resin. After curing, I would apply a thin layer of filler, and sand it again, until the surface would be smooth. A final gel coat, and the wedges would be ready to install. Once the structural form of the chair would be completed, the finishing touches could be applied to the surface of the chair.



7.3 And Just When I Thought

And just when I thought I saw the light at the end of the tunnel, Paavo revealed that he would have to focus on other projects exclusively, for the time being.

That meant that I was not to return to his workshop for several weeks. I had estimated that from that point on, we were only three to five full working days away from finishing “The MoROLL”. Devastated, I saw my chances of reaching the deadline dwindling. Moving the chair somewhere else was not an option. Even if I would have liked to move the chair somewhere else, I had nowhere else to go but my school’s workshop. But the chair was too wide to have fit through any of the doors there, which excluded the possibility of a transfer. There were also materials and tools needed to finish “The MoROLL”, which were hard to come by otherwise, but readily available at Paavo’s workshop.

I felt as if I had gotten both jobless and homeless from one moment to the next. I tried to hide my disappointment, while packing up my things. I had no choice but to surrender, as I was dependent on him. I had to let go of my project, at least for the time being. I had to let go of my control over it, and trust that it would work out in the end. I still had about three months to the deadline, so I was not finished yet. But I had planned a summer vacation, hoping to get the project finished before. I had to let go of that as well. Relinquish, bow, and retreat, one more time. I thanked him for his help up to this point, and left his workshop.

Although still sore from the shock of Paavo’s announcement, I kept a smile, and my head up. On May 21, 2010, I presented the development of the concept of “The MoROLL” as project work, and its conversion into a functioning prototype as my thesis work in progress. I demonstrated the breadth and width of its scope, highlighting problems with potential for learning and growth, both

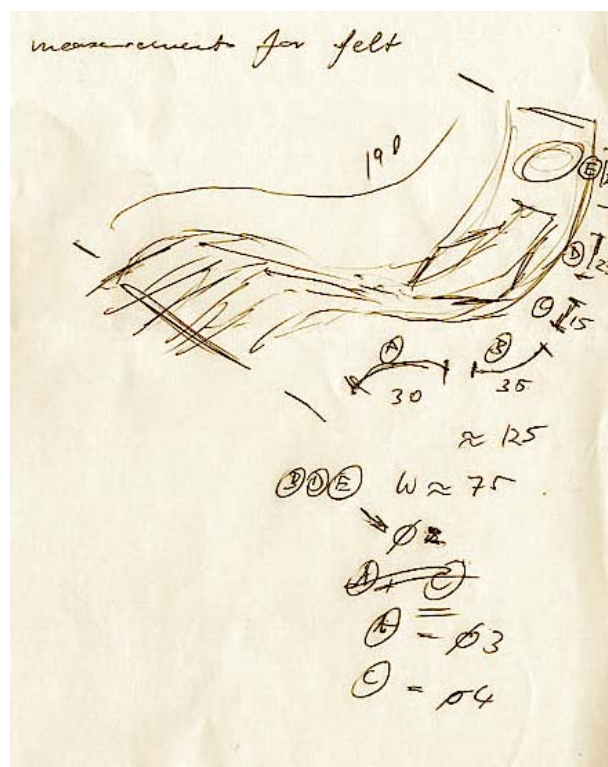
professionally and personally. My experiences in the project so far were already good examples of such occasions. I could not have been prepared for it, although I even anticipated it as a worst-case scenario, and was trying to preempt it, but I could not.

To add to my demoralization, a fellow student had sent me a link via e-mail, claiming that my design would exist already. I discovered to my disbelief, that a similar idea did exist indeed. The Mexican designer Victor Aleman presented in his online portfolio a chair⁸³, which is shaped like a spiral. Most of the pictures looked like 3D-models, and only one showed features, which could indicate that he actually had produced it. Yet, his chair's surface is curved, not flat like mine, and it does not have raised footrests, but ends flat. The backsides of his chair do not have any supporting wedges. The thickness of the shell's material in his construction also reveals that he had to address the problem of oscillation and bouncing when sitting down. All pictures indicated clearly, that he had fallen victim to a design problem, which I indicated earlier. When designed on a computer with a 3D-modeling program, the model of the spiral does not show that the user would actually sit lopsidedly. Although he probably was starting from a similar inspiration, his design was different in many ways. But what a shock to my already rocking world! Fortunately, there was no copyright infringement, as he had not filed for copyright or patent in the European region. Also, abovementioned differences in our designs made them unique. Further investigation showed his date of publication after the online publication of the

⁸³ <http://www.behance.net/Gallery/Loopita--La-mas-bonita/202556>, 20.08.2010

Top 20 of the International Design Awards, showing my design, which would put him in the position of infringing on my copyright. Although I did not need to fear a copyright dispute, I still felt like somebody had knocked the wind out of my sails. I felt like giving up. I needed a break before I would break, to pick up the pieces, and to find a new source of inspiration and motivation.

It was the end of May, the end of the semester. To take a step back from “The MoROLL”, I focused on other projects. I had school assignments to finish for classes, which I had neglected over my involvement in the production of the chair. As much as Paavo had interrupted the production for now, as much had his pace in the past determined mine. I had fully accommodated his time schedule, working when he was working. Not much time had been left for school in the prior weeks. I also made a conscious choice to help others, focusing away from my problems and myself, a healthy practice when taking myself too serious. After a week, my anger, frustration, and disappointment made way to a will even stronger than before. I was determined to not let anybody or anything hold me back, or bring me down. I focused on research for seat covers, continuing from where I left off weeks ago. Felt was still my primary choice, as I wanted to pay tribute to traditional crafts of the region I was living in. As I ended up building “The MoROLL” from fiberglass, a modern and engineered material, I wanted to contrast it by using thick felt, a natural product, with a longstanding heritage in handcrafts in North Karelia. Measurements, which I had taken from the chair, gave me the amount and thickness I needed.



After two weeks away from “The MoROLL”, I got nervous. I was not able to make other plans, or stray far away from Joensuu, as I never knew when the day would come that I could continue my work on the chair. My biggest fear was that Paavo would go on a long summer vacation, leaving “The MoROLL” locked up in his workshop, preventing me from finishing my work. The best I could do was showing up, signaling to him that I am still waiting to continue to work, and hoping that he would understand, and not let me down. And he did, as we proceeded that day. I trimmed the excess fiberglass on the edges with an angle grinder, protrusions from the additional layer we had to add to stabilize the outside faces of the wedges. Then, after sanding, several thin

layers of polyester filler were added, smoothing the surface in between with ever finer sanding paper.



The goal was to prepare it for the final surface touches, several layers of gel coat. The smoother the subsurface, the less gel coat is needed, and the smoother and shinier its surface gets. The following days were very productive. Paavo had applied the first coat with a foam roller and a paintbrush. As its surface still showed irregularities, and reflected the foam roller's pattern, I had to sand it down, smoothing it out.





Once I was satisfied with the evenness of the surface, Paavo applied the next layer of gel coat with a paint gun. Through all the sanding, coating, and re-sanding, the surface broke in at one of the wedge's top corner. We had to fix it with yet another layer of fiberglass. Although it was only a small area that needed patching up, we ultimately had to redo the whole surface of the wedge.





As I remained unsure of my place and time, and interruptions in workflow kept ailing the progress, I would return almost daily to Paavo's workshop, checking in, saying hello. I would only stay to work when I could see that he had time and motivation to work on my chair, and that I was welcome. The next few weeks were mental torment, caused by waiting, insecurity, rejection, and physical and moral stand-by. The time seemed to be slipping away, and I would never know when the next would be that I would be able to proceed.

In the beginning of July, after many interruptions, setbacks, and much inactivity, I continued my project with trimming the rims around the whole chair with a pneumatic jigsaw. Their height was to be an even 25 mm all around. Weeks ago, we had laminated a rim in a right angle to the sides of the chair. We did this to fixate and stabilize the curvature of the loop of "The MoROLL". Since then, this structural necessity had become a desired design feature, giving the

chair a distinct profile, and allowing the user to grab onto a kind of rail when sitting down. It also added to the feeling of safeness when sitting in the chair. A small rim around the sides gives a feeling of enclosure. The user does not feel as exposed as he would when sitting on a plain open-faced surface. After cutting, I sanded the cutting planes by hand with sandpaper, as their profile had to match the curvature of the chair. Then, masking tape applied to the backside of the chair, alongside the rims prepped the chair for adding polyester filler to its sides. My plan was to add roundness and bulging to both the inside and the outside of the rims. This was the area where the user would touch “The MoROLL”, where it had to give something to hold on to, where it has to feel comfortable and safe to the touch. Also, the rims would characterize the chair’s side-profiles, as much as the wedges gave character to its front and back profiles.



The next morning saw the wedges to he chair finalized, with a shiny white coat.



With the wedges finished, I had to re-assess the floor plan for the planned base platform. A necessity for transport, and an option to prevent the chair from sliding around when in use, I was planning its construction over the last few weeks. With wooden beams, I laid a rectangular frame around “The MoROLL”. Its length was 177 cm, its width 180,5 cm.



I continued to cut the rims, and to sand the cutting planes to an even round, matching the curvature of the chair. As we had added the rims in several different stages, crevasses at these junctions had to be filled in, and smoothed out. I made a mold, a temporary guide from fiberboard along the inside of the rim, fixating it with hot glue. That way, I was able to fill in the putty between the small strip of fiberboard and the outside of the rim, creating an even, smooth surface. Once dry and hardened, it could be rounded by sanding it with sandpaper.



When measuring the base plate, I realized that the innate tension in the chair, created by the spiral shape of its design, was still at work. Although I added the wedges to prevent any movement, the chair still acted like a spring coil, pushing the ends of the chair outward. The chair was too thin and too light as to keep its shape by itself when two adults would get in and out of it. As a result, the opposing seats would twist out of their parallel position, and the wedges would be pushed off the ground. There was a correlation between the tension in the chair, and its stability to the ground. Both forces had to be in balance. I marked

the chair's position on the ground, and its correlating points on the chair itself. I then produced a wooden template, 180 cm long, and 20 cm wide, filling exactly the intended gap between the seats. It would serve to keep the chair's seats parallel, and in the right position on the ground, ensuring the right balance between tension and stability.



At this stage of production, I could not attach anything to the chair that would not be a permanent fixture, so I put masking tape to the floor, to mark the exact positions of both the chair, and the template. Once aligned, the chair would be in its exact final position, with its exact tension and curvature. Only then could we attach the wedges permanently, flush with the chair, and plane to the ground. Their insides had to be sanded plain, for a tight fit. The area on “The MoROLL”, where they would be glued on with resin, was taped off, and roughed up with fine sandpaper to allow for a solid bond. Finally, we added a hole for a screw, which would aid us in pulling the wedge tight to the chair, until the resin was cured.



We attached the wedges into their final position.



After several hours, we removed all masking tape, and cleaned the chair, to reveal the result of our hard work, and our attention to detail. It all came together. This was good design, a form in harmony with function. It had been a good day.



The next days found me grinding and sanding the outsides of the rim, with an oscillating sander, and by hand. They had to be even, flush, and rectangular to the backside of the chair. The thickness of the rim varied between 2 to 8 mm. I intended a constant thickness of 5 mm. With a slim belt sander, I began to work on the insides of the rims, grinding off the thicker parts of the rims.





I took the chair down from its support beams, where it had rested on to glue the wedges from below. Now it became obvious that my design worked, not only visually, but also functionally. The wedges caught the motion of a person sitting down. When one person would sit in the chair on one side, while another person would be sitting down in the chair on the other side, there was no rocking motion, no vibration, no rocking. This design was a success, and it looked great.

7.4 Live, And Let Live

There was good and visible progress. Yet, anguish, mental and physical stress of the work and my situation took their toll. I had to stay on top of my condition, and not let work or people get the better of me. I took a personal, human-centered approach. I could not change the situation, because I was depending

on it. Its parameters were not for me to change. I could not change any person other than myself, either, but I could change my attitude toward others, and the situation I was in. Therefore, I decided to look at it as lessons I had to learn. Then, I assessed the following about myself to accept and live with:

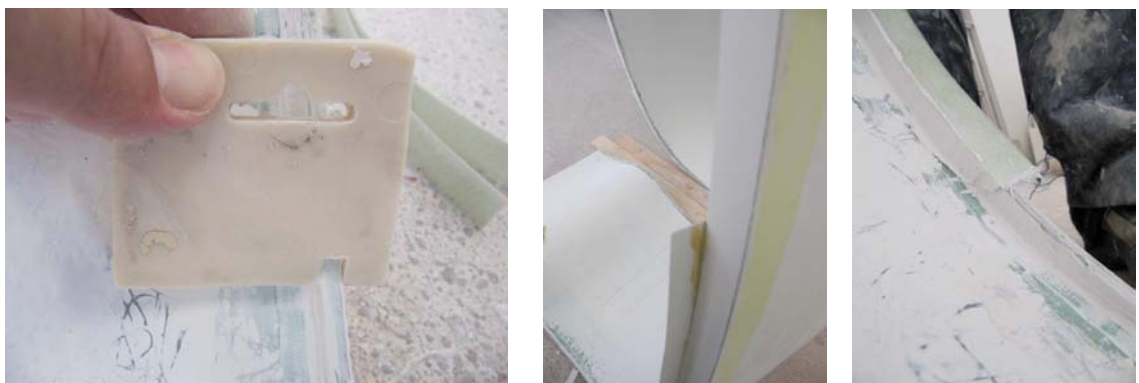
- I would not give up, but also would not give in.
- I would continue in small steps. I would practice to be patient.
- I would continue to be friendly, polite, and understanding, even if I would not understand what is going on, and why.
- Being friendly, polite, and understanding did not get neither my project nor me the respect I was hoping for. Quite the opposite, it seemed that it would rather put me at the end of anybody's priority list.
- I had to start practicing "sisu", a Finnish belief in the positive qualities of being stubborn, "tough, not flexible"⁸⁴. To be heard, I had to use my elbows, slam the fist on the table, and not back down.
- Without any leverage for demands, and without any support from anybody else at that time, I had to humbly accept my situation, and be grateful for what I had.
- I had to move forward, one day at a time, one step at a time, trusting in the right outcome in its own time.
- I had a right to feel all that exhaustion, frustration, criticism, doubt, and insecurity. Although I could not change that, nor make anybody

⁸⁴ Roman Schatz, 2005, *From Finland With Love*, p. 24, Helsinki, WS Bookwell Oy

responsible for it, or demand that somebody or something would take it away,

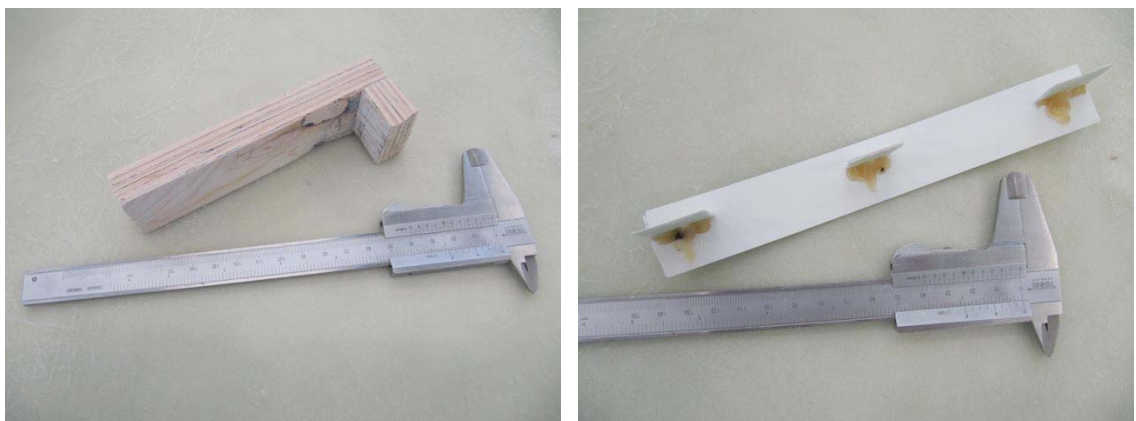
- I had to express it. As a designer, and as a creative, keeping all that inside of me was not an option. It would have defeated the purpose of my work, which was about connection and communication, intuition and inspiration, personal privacy, comfort, and safety. It would have been detrimental to my project, and poisonous to myself.
- I had to share my feelings, my sorrows, but also my successes with somebody who would understand how I felt, and who cared.

In the workshop that day, it was all about adding, and taking away again. I made a template for the sides of the rim.



Their width had to be level and the same all around the chair. In some sections of the chair, the rims had to be sanded down because they were too thick. Where they were too thin, and filling was needed, we hot-glued a piece of laminate alongside the rim, with an excess of 5 mm to the inside. Then we filled

it with putty, thus creating a straight edge of 5 mm thickness. I also devised a mobile version of said template from fiberglass. It allowed moving the template along with one hand on the outside, while at the same time filling in the putty from the inside with the other hand. It proved to be versatile and timesaving. To even the heights of the rim's edges all around the chair, I constructed yet another template, this time from plywood. Its long end I would wield along the outside of the chair, while using its short end to stop the grinder, or the sandpaper respectively. While aligned with the outside height of the rim, it would keep the curvature of the inside of the rim in exact proportion to the outside of the chair.



After a short break, the seating surface of “The MoROLL” had to be prepped for gel coat. That meant, that all unevenness had to be eliminated. That meant more adding, and more taking away, more filling, and even more sanding. I sanded the surface by hand with 80-grain sandpaper, then with 120-grain paper on the oscillating sander. Then, we added more putty, filling in the small holes

and cracks, to even out the surface. After a short drying time, we added gel-coat.

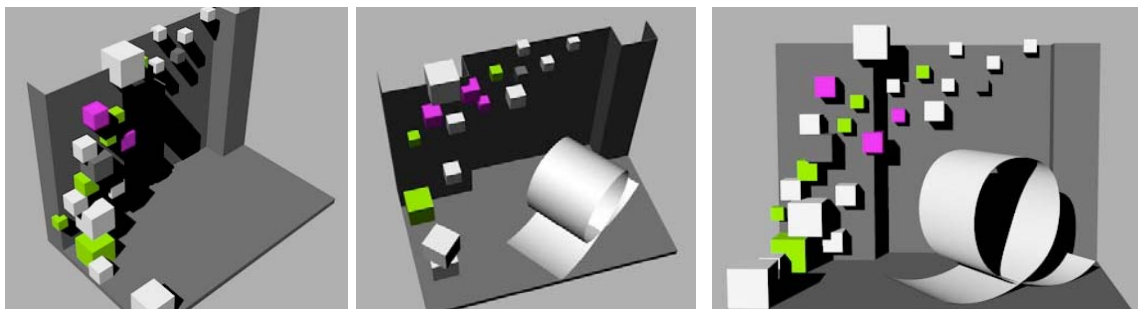


And did I mention sanding yet? Paavo had left for the weekend already, but I was not finished yet. After waiting for the gel-coat to cure for an hour, I sanded it by hand, to create a smooth surface for yet another layer of gel-coat. In those days in the middle of July, outside temperatures were close to 30°C, inside slightly above, and it was dusty, noisy, and itchy. After an 8-hour workday, with 2 hours more to go, it looked like that:



I took it with humor. In the end, I did this work because I loved the design. I had everything to be grateful for.

In between all the work, I had to plan ahead. I had a meeting with a fellow student who was to design the layout and the construction of the school's fair stand for Habitare. Pekka Puhakka, an able designer, reliable and responsible, presented several layout options on the computer. After seeing his first drafts, I was confident that he understood the dynamics of "The MoROLL". He had captured its essence, and translated it into stage design. After discussing technical details, the floor construction, and lighting requirements, he assured me that he would take care of the construction himself. I offered my help, but he declined. We agreed that he would produce a 1:10 paper model by the following week. We wanted to see if it would work visually, before he constructed the real stage.



At Paavo's workshop, yet more patience was needed. Paavo announced that he would be gone for some time, which meant that I would be forced to interrupt the project yet again. But before that, and for the remainder of the day, I sanded, and I sanded some more.



7.5 If In Fear, Do Something Else

For the next three weeks, I involved myself in projects other than design, and outside of "The MoROLL". At the same time, I immersed myself in research on materials for the seat covers. Not being at the workshop every day helped me to clear my head, so I could think outside of my "box". I found hardware stores

inspiring, as they give a fair cross-section of what kind of materials are available on the market, ready to use. I enjoyed looking for materials out of their usual contexts, and imagining their use in my project. Apart from standard hardware stores (like Starkki⁸⁵, or K-Rauta⁸⁶ in Finland), I focused on special-items stores, like Kummipörssi⁸⁷. There, I inquired about industrial felt, and about industrial rubber. I asked for samples, prizes, sizes, and quantities. I did not commit to one material yet. I intended to take samples back home, and later to the workshop, so I could ponder possibilities and problems in quiet, to see how they look on the chair, and to feel how they sit. But I also pursued avenues off the beaten path for acquiring construction materials. I went to sports utilities stores, to supermarkets, and my favorites, recycling centers and junkyards. I allowed myself to freely brainstorm on materials to be used for seating; the further away they were from the usual seat context, the better. I had considered materials as different as yoga-mats, garden hoses, and piping insulation, ropes, rubber profiles, and knitting wool, to name a few. Searching for materials was equally exciting to me as ideation always is. Both its problem solving, and the freedom to come up with anything, from the very obvious to the totally unobvious, tickle my creative mind. It is creative, innovative and inventive, and as that a major part of my design process.

I met with Pekka, who had been working on the paper models for the fair stand. In the meantime, he also had started on the construction of the wooden floor.

⁸⁵ <http://www.starkki.fi/>, 20.08.2010

⁸⁶ <http://www.k-rauta.com/>, 20.08.2010

⁸⁷ <http://www.joensuunkumiporssi.fi/etusivu/>, 20.08.2010

We decided on a hollow construction made from plywood and wooden beams. We wanted the visitors of the stand to take a step up when approaching the chair. Once seated, the visitor should not feel as if they were sitting on the floor of the fairgrounds. Therefore, it had to be heavy and sturdy, allowing for visitors to step on it, and “The MoROLL” to be mounted onto it. The floor was not to move or vibrate. It would be raised 10 cm off the ground, and covered with black carpet. The wall construction we would make from plywood, and paint it black. Decorative cubes would be manufactured from Styrofoam, painted mostly in white, with a few in green and red. Pekka wanted to add with the cubes dimensionality to the stand, visually enforcing the dynamics of the chair. This was good design thinking, as Pekka understood that the stand was to enhance the design of “The MoROLL”, and not to distract from it by being a design effort in itself. I was very pleased, and grateful to Pekka for his effort, his time, and all the contemplation and work he had put into it so far.



After another three weeks of insecurity and waiting, I was able to resume my work on “The MoROLL” at Paavo’s workshop. I was eager to lay all the material samples I had gathered in my research for the seat-covers on the chair, to see them in contrast to the chair’s size, color and feel. The seat cushions would only cover the areas where the person sitting actually needed support. I also wanted to highlight the area for the user, by creating a contrast between the surface of the chair and the cushion, in both material and color. An important criterion for choosing the material was its compatibility with fiberglass. I needed Paavo’s expertise to insure that the materials I had found so far could be glued onto the chair. Together, we investigated different samples of closed cell-foam rubber⁸⁸, some of which were available with a self-adhesive glue side. I was looking for the cushioning quality, the feel, and the look as found in rubber like neoprene, a material which diving suits are made of. We looked at polyethylene foam, minicel foam, and gymnastic rubber. Solid rubber, without any enclosures, was too firm. Cell-foam was available in mats, 1000 x 3000 mm in size. I was interested in a minimum thickness of 0,5 cm for the cushioning. Available were 6 mm thick for the prize of € 73, -, and 13 mm for € 135, -, plus sales tax. As they had to be custom ordered, I asked for a few days to think about it before I would make a decision. Money was still an issue, and I wanted to be sure that I had the right material for my design. Over the next days and weeks, I would be a frequent customer at Kummipörssi, coming up with new solutions and ideas every time I would enter the store. Thanks to Timo Väyrynen, the store’s manager, I was able to take samples back to the workshop to try on the chair.

⁸⁸ <http://www.closedcellfoams.com/>, 20.08.2010

At the workshop, we added another layer of gel coat to the inside of the chair. I added filler to the inside edges of the rims with a template I had created, resembling the curvature I wanted. Once gel-coat and filler had cured, I sanded them again by hand. Every time a new coat would be sanded off, the surface would get smoother, until the final coat. Although I was not looking forward to working all day sanding fiberglass, it was relieved to know what the next steps were, to come into the workshop and to have the work cut out for that day. It was the middle of August, and outside temperatures were summery hot, which made the temperatures inside the workshop even hotter. Working indoors with fiberglass meant dusty air, bad smells from fumes and vapors of resins, glues, and acetone. It also meant bad air circulation, although there was a professional air filtration system. But air movement creates dust movement, which had to be prevented; the doors remained closed at all times. It meant wearing an overall covering the whole body, a headdress, glasses, gloves, and breathing mask, to keep as many poisonous fiber particles as possible from entering the human system. Sanding, no matter if by hand or with the machine, is strenuous and physically demanding work, but these conditions aggravated my exhaustion, and made going to work not something I was looking forward to. But I was happy that we finally had started work again. Blisters from sanding were better than blisters from the sun. Working hard meant that I was making good progress, and that was good news.



We continued to fill the inner edges of the rims with putty, rounding the sides towards the sitting surface. This was an important design feature, because the exposed side of the sitting surface was visible, and more importantly, tangible to the user. This was the place where the user would touch the chair when getting in and out. It had to transport the feelings of safety, security, and stability. And it had to look good, of course. As “The MoROLL” was all about flow and motion, it could not stop at the edge of the sitting surface with a right angle to the rim.



The outside of the rim got a new design as well. Out of plastic, we cut a template that would allow us to shape the same curve out of putty all around the chair's rim.



All the added details on the rims of the chair had to be sanded even, and rounded by hand with 120-grain sandpaper. To allow for the feeling for the curves, the sanding had to be done without gloves. But physical wear and tear could not be taken under consideration at that stage of time and development.



As the chair took shape, I wanted to make sure that accidental visitors were not the only ones impressed by it. Before my chair and me would leave Paavo's workshop, I wanted to impress on him and the public my appreciation for his work. I did not want to leave it unrecognized. With a press conference, I could give something back to Paavo for all his help. I wanted to show and tell him, and the city he lives in, how much his help had contributed to the success of that prototype. It would be my success later, and far away from Joensuu, where it would not reach him. As I could not give him any money, a thought a press release to be good advertisement for him and his business. It could also reward him with respect and acknowledgement from his local community for his achievement. In the beginning of our cooperation, I would observe him being embarrassed when his customers would inquire about "that weird funny thing there" in the back of his workshop, pointing towards my chair. But soon, he was presenting it proudly, as his customers seemed impressed and interested. I saw a good opportunity to honor his voluntary and valuable involvement. For myself, I did not feel the need to publicize my design in Joensuu, as did not see my target market locally.

With the invaluable help of friends of mine, Usi Riikonen and Johanna Lipponen, we started to plan and schedule a press conference⁸⁹. We had an initial strategic meeting, listing the media we wanted to reach, and the kind of story we wanted to tell. We made a list of things to do, and people to inform. My assignment for the next day was to produce a press release, or at least a text with illustrations that could be used for a press release. As a creative, I find it easy to create, but difficult to promote my creations. Like many nights, when I came home from the workshop, after an 8-10-hour workday, I was physically exhausted. But there was still research to do, people to contact, and e-mails to write, which could not be accomplished during the day. That day was not different; I had a press release to write, and to send it with attachments and illustrations via e-mail to my friends, who would take care of organizing the event within a few days time⁹⁰.

When looking at my time schedule, I had ended up exactly where I did not want to be, and where I tried to avoid ending up. Through careful planning, taking charge, ahead-of-time working schedules, and asking for help and commitment, I had tried to avoid being under pressure and being solely responsible. I had tried to leave room for error and mistakes, and to acquire help. I had tried hard, and everything I could, but I ended up being there anyway. With three weeks to

⁸⁹ Keep in mind that, although the chair was my project, the exhibition at Habitare was not; it was my school's. Yet, NKUAS did not as much as react to e-mails about this, let alone participate with a press release, or in the press conference itself. I cannot say what upset me more, that NKUAS entirely ignored one of their students and his project, or that it gave away such obvious and free opportunities for publicity, but it sure was disappointing, and embarrassing towards my friends, Paavo, and the press.

⁹⁰ Appendix 2

go, the chair's surface was not finished, and had it had no upholstery yet. There was no advertisement designed or printed for the fair stand, although it was advertisement for the school, and therefore the school's responsibility to arrange for it. Until that day, NKUAS still had nobody assigned to help, counsel, or guide me, nor afforded me a budget to pay any expenses with. I knew that the fair stand was in production, but as it was in the middle of summer, nobody was to be accounted for. There were no reservations for hotels, or arrangement for transport to take the material and personal to Helsinki. I was not even sure if we still would be in fact going. Not that I wanted to be in charge, and I was not. But neither was anybody else, yet the responsibility was all mine.

I asked for a meeting with Riku Rantala and Tommi Sylvan from school. As project coordinators for NKUAS, they had some discretionary competence, and at that point I did not care anymore who made the decisions, as long as the necessary decisions were made. Decisions on making reservations for the spot for the fair stand, for cars and hotels would have to be made a long time ago, and acted upon. Yet, nothing had happened, and nobody had cared. I felt overwhelmed, and deserted. Even if I wanted to, in regards to my school's business, I could not have made these decisions myself, or for them. I was not authorized to do so. I tried to accept my situation, and not let it affect my personal relationships with Riku and Tommi. I asked for their help. That was all I could do at that moment.

More research on the seat covers was necessary. I called a Finnish felt factory, Koskenpään Huopatehdas⁹¹, inquiring details about the differences in felt quality and prices. I ordered samples according to what I thought I would need. The quality would be determined by the kind of wool used, the percentage of recycled materials in the content, and the amount of wool, its weight in gram per m³. The prices were around € 40, - per kilo. The more dense the wool, the heavier and harder its quality was. I was looking for a soft quality, which would be able to absorb the shock of a person sitting down from a height of 80 to 100 cm. I asked for samples of 0,28 g/m³ and 0,36 g/m³. These qualities were available in widths of 100, 160 and 190 cm, and in the colors grey, white, and yellow. I estimated that I would need about 7 kg, which would have cost a total of € 280, -. Although felt was still my preferred material to cover the seats of “The MoROLL”, I knew that I would not be able to afford it for the prototype. I had to let go of it for now, and concentrate on other materials.

Back at the workshop, I experimented with samples from cell-foam rubber. I cut the corners, to bend the edges as done in traditional upholstery. It looked acceptable, and the cushioning qualities were very good. When I doubled the 10-mm layers, the comfort increased as well. Although smooth at the beginning, the surface of the cell-foam rubber would show quickly signs of tear, in the shape of cracks and small holes. This material would be too soft to withstand the stress of multiple users in a public space. It would need yet another cover

⁹¹ <http://www.koskenpaanhuopatehdas.fi/fi/index.html>, 20.08.2010

on top, like vinyl or textile, to protect the rubber from tearing and ripping. More research needed to be done, for another material altogether.



It was time to “explode the box” one more time, to consider the inconsiderable. The research had to be locally, for readily available solutions. I went to hardware stores, sports utility outlets, and toy stores. Inspiration had to come from somewhere, and it could come from anywhere. With my intuition as my guide, I knew it would. Colorful floatation devices used as swimming aids, called “pool noodles”⁹², caught my eye in the sports section of a supermarket. Simple foam hoses, 8 cm in diameter, and 120 cm in length, produced a paradigm shift in my thinking. I understood in that moment that the very structure of the material I would use for the seats did not have to be flat. It could be round, a pipe, a hose, a cord, or a strand. It could be round, or half round, or I could arrange it in any patterns I chose. I remembered that I had seen similar things in another context: insulation hoses for heating pipes! I immediately went to the next hardware store, to investigate quality, prizes, and availability. That late in

⁹² <http://blog.funswimshop.co.uk>

the project, my main priority was availability and feasibility. If it could be done, and if it would be available, I would do it. I had to put an end to open questions.



I visited Kummipörssi again, to ask their prizes on foam insulation tubes, available sizes, and eventual alternatives. And with a new way of looking at the question of what to sit on, I saw many new alternatives. Looking around Kummipörssi that day with fresh eyes was like I had never been there before. I was like a kid in a toy store, and this small austere warehouse filled with rubber and plastic items, had become my favorite playground. I realized many options on what materials could be used as seat cushions, and new possibilities on how to use them. I considered clear plastic tubes with a 12 mm diameter, and garden hoses with a 20 mm diameter, either strung together, or glued. I also discovered rubber profiles, which are normally used to seal door and window openings, as an alternative to sit on. Prizes ranging from € 17, - up to € 34, - per running meters made that an expensive choice, as I estimated my needs at about ten running meters. But some of these rubber profiles were affordable.

Having a self-adhesive glue-side made them easy and ready to install. I even inquired about a custom-made profile directly at the producers, and would await an answer within a few days. I also considered rubber floor mats, but soon discovered that their low sitting comfort was not what I wanted to offer the user of “The MoROLL”. Other customers of that store witnessed a strange spectacle, as I threw samples of any potential material to the ground, and sat on it, wiggling back and forth to find out if it would cushion my buttocks. I almost forgot why I visited there in the first place.



By now, the once exciting option of using insulation tubes as seat cushions seemed boring, and unattractive, besides their feasibility. The diameters of hollow insulation tubes were 45 mm on the outside, and 15 mm on the inside, with a price of € 2,65 per meter. Cutting the tube's profile in half would aid the stability of the cushion, and prevent that the tubes would start to roll under the weight and motion of a sitting person. I would be able to cover an area of 90 x 2000 mm with one roll, which would be very cost effective. If I would find a way how to cover the outside of the foam rolls, either with paint or with another

material, like cloth or leather, I would have found my structural material for the seat cushions of my chair. I collected many samples, which I would take to the workshop to place on the chair for further consideration.



Another day at the workshop had me sanding, filling, coating, and sanding again. Although still in a raw state, “The MoROLL” sure started to look impressive. Through the recent development in the research for the seat cover, I started to feel some of my old confidence coming back. The days before had been very exhausting, overwhelming, and frustrating. I felt fear of not being able to finish it at all, never mind the deadline. I had lost my faith in the project, as I felt that I had no allies, that I was all by myself, and nobody cared about the project but me. But I continued to show up anyway, no matter how I felt, or what I thought. Quitting was not an option.

I had brought several samples of potential seat cover materials to the workshop. I had brought different kinds of felt and cell-foam rubber, cell-foam insulation tubes, and clear plastic tubes.



With the samples on the chair, it was easier for me to envision the end product, its feel, its looks, and its function. I was sketching patterns on how to mount the seat covers on the seating surface. I was considering patches of cushioning, positioned after measurements that I had done while sitting in the chair myself. Any other place in the chair did not require upholstery, as there was no contact by the user. I considered alternatives for the insulation tubes. I tried different patterns to arrange and install thinner rubber tubes and profiles, realizing that their diameter in height changed when bent in a tight corner.

① = off-set 17.3.10
 ② = cut angle
 ③ = off-set + space

A ✓ B ✗ C ✗

- full-circle ①, or half ②?
- ③ off-set + space
- smaller ϕ in beginning and end !!

17.3.11
 ③

GLUEZ!

- problem gluing with foam!
- too slide!
- rubber is easier to glue!

- WHEN using soft plastic tube (+ scores in the end), leave space between rows!!

clear plastic tube $\phi \geq 20$ mm

+ FILLING (cloth, foam, wire, self-adhesive, etc.) 2 for plastic tubes... (see through), but not all the way to the glue!! + extra cushioning, but protection through plastic tube...

① 17.3.10
 (9-16)

- sawing
- test with different covers
- kit, sewing
- preparation for gel-coat, fibre sanding paper
- Kuni-piro + new samples

- Solukuni strips, adhesive

17.3.10

- gel-coats! 2 coats + sanding
- spirals: a) b) c)

- Test: space between foam rolls: 0, 5, 10, 15

-> sitting, down of "filling" in between $\Rightarrow \geq 10$ (15 is too much!)

- will I have time to sew 30-40 individual padding, or 10 patches? Not likely! No!?

-> a) solid rubber / solukuni, 0 or Δ
 b) clear plastic tubes ≥ 23 mm

- A) glue
- B) self-adhesive
- C) screws

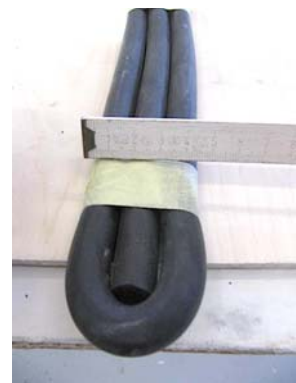
A seat is not just a seat to sit in; it is a statement of how the user wants to sit. Designing a chair, I make a conscious decision on how the user will sit. Cushions make the chair. Their pattern, shape, density, color, and arrangement amplify the design of the chair, similar to the interior of a car. This is where the user makes contact with the product. It is important how it looks, feels, what emotions and expectations it evokes, and what experience it generates. I wanted the interior of my chair to signal safety, not softness. I had to design the cushioning to absorb impact when sitting down, and to give support while sitting in the chair. This I could accomplish with the qualities of the material. But I also needed to impress

- Openness, that there was nothing hidden, therefore it would be safe to go there,
- Strictness and straightforwardness, that my design would do what it promised to do, and
- Steadfastness, that nothing would waver, so the user could entrust himself completely into the chair, thus allow himself to relax.

Although I was still playing with several interesting design alternatives, like clear plastic tubes filled with recycled materials, sand, or even barbed wire, I had become serious about making “The MoROLL” into a well-developed design prototype. I was opting for solid techniques and materials, instead of flimsy design effects. I realized that the choices I make now set the stage for the clientele later. I had to decide whether I wanted the look to be

- Rough and industrial,
- Stylish and customized, or
- High quality, hand-made, and exclusive.

As all materials I was considering at that point were available, feasibility was the main selection criterion; some of the materials were too hard to sit on, some were difficult to glue. If I were to use clear transparent plastics, I had to come up with a solution how to hide the glue. I had prepared a sample with clear plastic tubes for testing on the chair. I had to measure how much the material would squeeze when sat on, how much one running meter of tube was needed to cover of the sitting surface. I had to test the possibilities of using screws for fastening. Screws became an option for fastening the cushions to the chair, but only for a short while. I learned quickly that Paavo would take personal insult, if I were to drill holes into the shiny gel-coat on the chair's surface he had worked so hard on. I put that idea on the shelf for the time being.

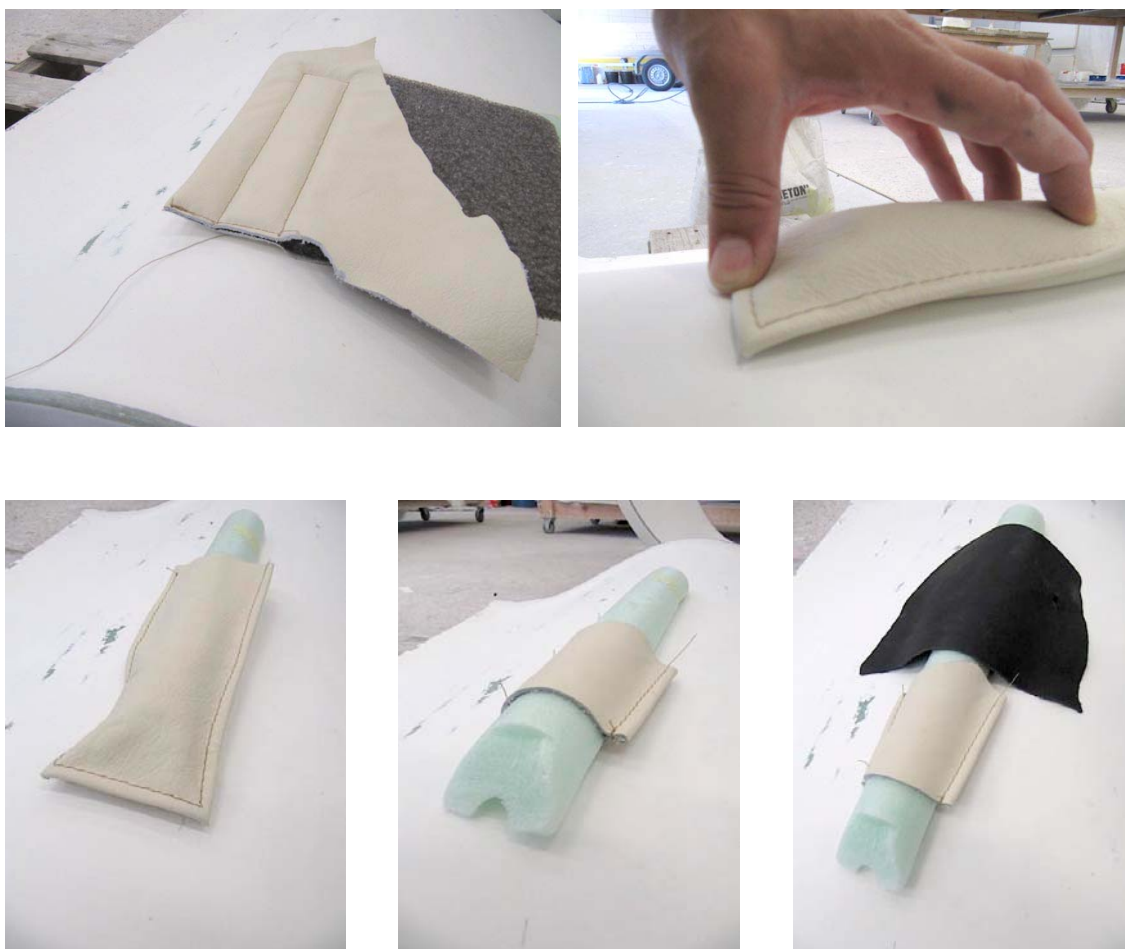




As I was getting excited about the insulation foam tubes as the insides for the seat cushions, I was in need of a covering material for them, to prevent abrasion. To use the proven techniques of upholstery seemed logical, and to ask a professional's opinion, or even his help the next step. Following a lead I had received the day before from Timo Väyrynen at Kummipörssi, I visited Tapio Tahvanainen, a master in the craft of upholstery, at his workshop. Accommodatingly, he walked me through his workshop, explaining the process of upholstery. I had brought with me samples of the foam tubes, which he started to upholster without hesitation. He used leftovers from previously cut leather, and demonstrated how to sew it fit. He understood that I had no budget, but was willing to help. He offered that I could come around his workshop to sew it myself, he even would show me, how. I left with new ideas, and yet more samples to try on the chair.



I tested the samples of upholstery the next day on the chair, not only for the looks, but also for the function. The space between two rolls could not be bigger than 10 mm, if the user should not sit between them on the bare fiberglass. If sewn, the leather seam on each side of the roll would measure 10 mm, which put two rolls at a distance of at least 20 mm to each other. Sewing doubled the thickness of the seams at the corners, which made for an uneven surface, difficult to glue. Another problem zone were the endings of the rolls, which would have to be sewn shut at an angle. We had prepared samples with different fillings, and different leather colors. Leather, and proper stitching indicating quality upholstery, and did obviously boost the look and feel of “The MoROLL”. But considering the time it would have taken me to sew 30 to 40 individual pieces, I had to come up with a different way to cover the foam rolls with leather, or look for other cover materials.



It was time to get spruced up, to impress the press! Paavo and me prepared “The MoROLL” and his workshop for the press conference, which was to be the next day. My friends Usi and Johanna have had worked hard on informing the media, finding and setting a date that suited everybody, and to get the press interested. As I was told, the press had picked up the story within an hour of the publishing of its press release. Not only was I to get the attention of the big local daily newspaper, but also the region’s radio and TV stations had confirmed their

attendance. Paavo put on one more layer of gel coat, and together, we cleaned the workshop top to bottom. We both were excited, Paavo even nervous. This was the first time that I had seen him touched by anything. I was hopeful that my plan of giving something back to him that would be meaningful, would work out. We were looking good.



On the morning of August 19, 2010, I turned Paavo's workshop into a show room, and his kitchen into a press center. I made coffee, arranged snacks I had brought, and prepared a presentation and information for the press. Paavo was jumpy. I assumed that he rarely had that kind of attention on him, if ever. I stayed relaxed, as I trusted my friend Usi. I knew that if she would take care of something, I would not have to worry. She proved me right.

The whole day went like clockwork. Tightly scheduled interviews with press, radio, and TV, presentations to reporters, and time for photo and camera shoots

were orchestrated perfectly in a time frame of three hours. Not once was there an overlap, an incident where somebody had to wait, or anybody being too early or too late. This was the day, the one occasion in the whole project of building the prototype of “The MoROLL”, where everything functioned without failure. I only can accredit this to the organizational skills of Usi and Johanna, and their commitment to do their part, and to get their job done, and done right. They volunteered, they did not get paid, nor any school credit, they just wanted to be helpful. They showed and executed that kind of commitment that I was looking for when searching for cooperators in the beginning of this project. What a relief to find that it existed in others. I am convinced that it cannot be made, learned, or bought, that it is a commitment to the person herself, to get things done and to get them done right. To not stop or quit before they are done is what leads to excellent results, good design included.



On the same day, we could hear announcements on the radio, repeated on the hour in the regional segment of the national news on YLE, accompanied by a

bulletin on their website⁹³. In the evening, Paavo, “The MoROLL”, and me were featured in the news of the local TV station K5⁹⁴. And on the next morning, we were honored with a full-page feature article in the local newspaper Karjalainen⁹⁵. And even a small article in Joensuu’s weekly advertisement paper Heili⁹⁶ later that week made sure everybody knew what “The MoROLL” is, and what Paavo Honkanen had to do with it. What a success!

⁹³ http://yle.fi/alueet/pohjois-karjala/2010/08/maailmalla_menestynyt_design-tuoli_sopii_lentokentille_1915947.html, 19.08.2010

⁹⁴ http://media.kooviis.fi/nettitelkkari2/share.php?link=Uutiset/Uutiset_19_08_2010.flv, 19.08.2010

⁹⁵ Appendix 3, <http://www.karjalainen.fi/Karjalainen/Uutiset/uutiset.html>, 28.08.2010

⁹⁶ <http://www.karjalanheili.fi/>, 28.08.2010

YLE.fi YLE.fi-etusivu | Löydä A-O Etsi Löydä

Pohjois-Karjala Uutiset Urheilu Sää **Aiheet** Tekstiversio Tekstikoko: A A A

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JOENSUU Etusivu > Artikkelell

Maailmalla menestynyt design-tuoli sopii lentokentille

Julkaistu 19.08. klo 15:33, päivitetty 19.08. klo 19:34




Michael Weinmann (edessä) ja lasikultateknikan osaaja Paavo Honkanen kokeilevat tuolin prototyyppiä.
 Kuva: Yle / Janne Ahjopalo

Pohjois-Karjalan ammattikorkeakoulussa muotoilua opiskeleva Michael Weinmann on kehittänyt design-tuolin, joka on menestynyt kansainvälisessä kilpailussa. Tuoli soveltuu muun muassa lentokenttien odotusaloihin ja johtajien työhuoneisiin, visioi Weinmann.

Apuna Weinmannilla on ollut lasikultateknikkaan erikoistunut joensuulainen Paavo Honkanen. Käden istuttava tuoli on muotoiltu kiemurainen ja futuristinen. Lasikuludun lisäksi materiaalina voidaan käyttää puuta, bambua ja jopa kierrätyspaperia.

Ajatus tuolista putkahti Michael Weinmannille omakohtaisista kokemuksista lentokentällä odottelusta.

- Istuimet ovat monesti kentillä epämurkavia ja tilat näyttävät muutenkin tyjsiltä, moitti Weinmann.



Ammattikorkeakoulussa muotoilua opiskeleva Michael Weinmann osallistui kansainväliseen suunnittelukilpailuun (International Design Award 2009), joka on suunnattu alan opiskelijoille. Osanottajia oli yli 1 600 ympäri maailman. Weinmannin sijoitus oli hienosti kahdenkymmenen parhaan joukossa.

Seuraavaksi Weinmannin tuoli pääsee Helsingin Habitat96-sisustusmessuille syyskuun alussa.

- Olen iloinen tästä mahdollisuudesta. Toivon, että kohtaan aitoa innostusta mahdollisten valmistajien taholta, sanoo Weinmann.

YLE Pohjois-Karjala / Janne Ahjopalo

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Pohjois-Karjalan lehdet

Mitäiseksi internet muuttuu?


Miten sinä uskot käyttäväsi nettiä 10 vuoden päästä? Mitä Ylien verkkopalvelun pitäisi tarjota vuonna 2020? Nyt on oikea aika tuoda näkemyksesi esiin. Avoin keskustelu netissä pohjustaa Ylessä myöhemmin alkavaa pohdintaa tulevasta.

Osallistu keskusteluun Ylien Aikaleima-blogissa

Rattijuoppo jää kiinni

Pohjois-Karjalan tuoreimmat rattijuopumusepäilyt

Sää 23.9. klo 21



I felt proud, for Paavo, and of our achievement. I also felt grateful to these friends of mine. Without them, that would not have happened. And exactly in that light of contrast, the absence of NKUAS was prominent; after all, it was the school's own cause. Paavo, my friends, and me advertised and promoted NKUAS and its cause by doing something worth talking about, and by talking

about them. NKUAS did not decide to go to Habitare to do me a favor, but because it would have my project and me there to show for. There is nothing wrong with that, and I profit from that deal as well. I would not have been able to afford to go to Habitare by myself, and it was the school's idea in the first place to use my design to promote itself at Habitare. NKUAS was neither responding, nor acting responsible, nor was anybody committed, accountable, or present. Although I was trying hard to not let this bother me, I did not always succeed. However, over the whole duration of the project, I had gotten used to pulling it off by myself, and I had succeeded quite well so far. I even started to be grateful for NKUAS for not being involved. It allowed for major growth, personally and professionally, beyond my duties as a student and as a designer. It taught me valuable lessons about people; it disillusioned me, it took away an illusion I had about how things should or could be, and showed me how they actually are. It had sobered me up.

7.6 Far From Over

Neither the day, nor the work was over yet, far from it. I had still more samples of new solutions for the seat covers to consider. As much as I would have liked the chair upholstered with foam and leather, there was not enough time to do it. So I kept looking for a fast and affordable solution, which would project design proficiency, design thinking, and, most importantly, provide comfort and function. It had to be easy to mount, with glue, not with screws. Push button fasteners could have been an option, as it was used frequently in furniture upholstery, especially when cushions had to be changeable, but they also

would have required drilling holes into the seat. For Paavo, that was out of the question.

Kummipörssi was still my favorite playground for considering and reconsidering solutions “outside the box”. Fire hoses, in different colors and diameters, had a rubbery, shiny surface with a textile structure, were flexible and heavy duty. Filled with cell-foam rubber, I would have had an instant and sturdy solution. The colors available inspired me to consider the Finnish national colors of blue and white, addressing national pride and identification. But something did not feel right, and although time was running out, I could not get myself to settle for something. Later, I learned that I had reached a project plateau, and was procrastinating for fear of executing finalization. Looking for yet another alternative was my “lizard brain” telling me to “hold back”, sabotaging execution⁹⁷.



⁹⁷ Scott Belsky, 2010, *Making Ideas Happen*, pp. 71-72, 82-8, New York, Penguin

I was not looking for a perfect solution, but at least a good one, which would complement good, solid design. Using fire hoses, although a bright, colorful, clever, and witty solution was not what I had in mind for “The MoROLL”. A mere design detail, they would have been the center of attention, rather than have added to the design as a whole. I needed something worthy, something that would bow its head to the overall design of that chair, something noble. Adding to the improbability of this solution, filling the fire hose with cell-foam rubber caused an oval cross-section, thus creating a new functional problem. The upper side, its sitting surface, was bigger than the bottom side, the surface that would be glued to the chair. The cushions would start to wiggle and to roll, pulling the cushions off the chair. Kummipörssi had received my requested estimate from Finnprofiles Oy⁹⁸, a company specializing in the manufacture of rubber profiles. I had inquired earlier about the feasibility to have a profile custom-made for “The MoROLL”, as I could not find an adequate profile that would accommodate the specific needs required by my unconventional use on the chair. I was offered an Ethylene-propylene rubber (EPDM) with a D-shaped cross section of 25 x 50 mm, for around € 400, - plus tax. That would have included the fabrication of a new tool according to my specifications, and a test-run of maximum 20 meters of rubber profile. For a small series of chairs, that would have been an offer worth considering, and a reasonable investment. But for one prototype, with no money and almost no time to spare, I had to decline.

⁹⁸ <http://finnprofiles.com/en/index.html>, 27.09.2011

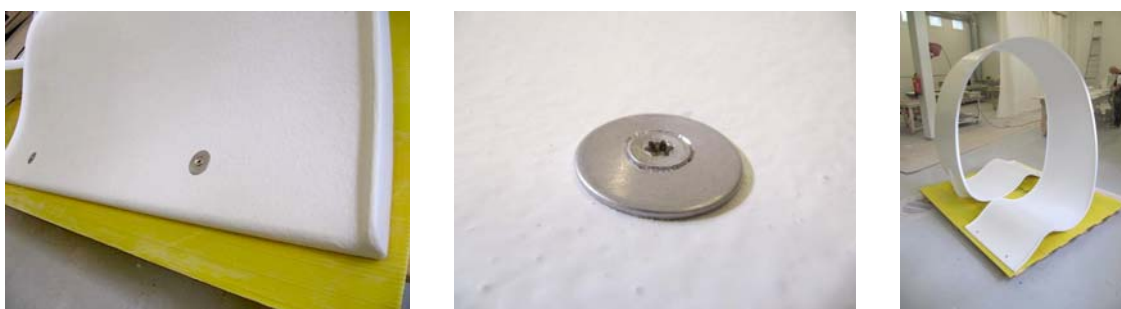
While at the store, I asked the manager Timo Väyrynen if his company would be interested in being an official sponsor of my project. With all the support and help I had already received, I was gladly offering this possibility to him. He thankfully accepted, offering additional materials I would need without charge. I would return later to obtain actually all the materials I needed for free, including 25 rolls of the insulation cell-foam, adhesive tapes, liquid glues, and rope and a tarp to cover the chair for transport. I even received a wooden palette to mount “The MoROLL” on, so the trucking company could pick it up with a forklift for transport. Not to mention all the material samples, which I was given to experiment with without any reservations. Not having any resources to print promotional material where I would have been able to put his company’s name on, I asked for stickers displaying the logo of Kummipörssi, which I intended to use on the fair stand at Habitare.

At Staffan, the upholstery workshop, we experimented still with the fire hoses, a material new to upholsterer Tapio Tahvanainen, but not unwelcome. He suggested cutting the filling foam so it would change the profile of the cushion. But the fire hose’s rubber-enforced fabric was too stiff to adapt to the shape of the foam inside. We considered sewing the ends shut, thus creating a flat surface at both ends, which could have been attached to the chair with screws or snaps. Although a good technical solution, it did not satisfy the designer in me.

Back at Paavo’s workshop, I started to mount the chair onto a wooden shipping palette, which Kummipörssi had already delivered. I slid a thin, but rigid sheet of

plastic between palette and chair, to safeguard against water and dirt during transport. With four screws and washers made from stainless steel, I then attached “The MoROLL” firmly to the palette. Previously, I had drilled fitting holes into the chair, in places where they would be covered up with cushions. The same holes and screws were to be used later to set up the chair at the fair stand. Even at the exhibition, I would anchor the chair in a predetermined position. Because of its lightweight, it would otherwise slide on the carpeted surface of the stand’s platform. Although the chair was still missing its seat covers, it was ready to go. I could not work with delicate materials and glues in the dusty environment of Paavo’s workshop. Neither was the ground there even. I needed an absolutely even surface to stand the chair on, before I could permanently attach the cushions to the chair. They had to be perfectly level in the environment the chair would stand in, because of the stark contrast of the dark color of the cushions to the white background of the chair. Any unevenness would be clearly visible. The cushions had to be glued on the chair on location, in the last hours and minutes before its premier, trusting that material and glue would work. For that, I had to calculate a considerable amount of extra time when setting up the chair at Habitare. And nothing was allowed to go wrong! But for now, the chair was ready to go; Kiito Linja⁹⁹ would pick it up in less than 10 days.

⁹⁹ Finnish national land transport company; <http://www.kiitolinja.fi/log-ki-en/start/transportservices/>, 21.08.2010



Over the weekend, I took inventory of the options I had on materials for seat covers. I spread out all the material samples I had across my living room floor. With the help of my girlfriend, Kirsi-Marja Moberg, I pondered their pros and cons, weighed feasibility against availability, glue mount against screw mount, looks against practicality. I had to make a decision, time was running out. Departure to Helsinki was scheduled for August 30, a week from Monday. By then, I had to have cushions made, ready for installation. We eliminated materials that would not be available locally, which would be too expensive, which introduced more problems than they were solving, and the ones that evoked the appearance of razzle-dazzle. That narrowed down my list of options, excluding clear plastic tubes, most rubber profiles, and fire hoses, no matter what the color. With her help, I came to a final decision: I would use cell-foam insulation tubes as structural material. Their profile cut in half would result in a D-profile. From now on, I would focus on finding materials to upholster that.

With a week until departure, came Monday I had a meeting with Riku Rantala at the school. He was supposedly the man in charge of organizing, and making reservations and bookings for transport, travel, and hotel. I inquired about the

progress of the NKUAS fair stand, and the hiring and availability of helpers for Helsinki. We had organizational meetings before, and tasks and responsibilities were allotted. But my trust in reliable implementation had suffered severely in the past, and also this time, I would not be spared. I was assured, that everything was taken care of. But the only thing that actually was taken care of was the construction of the fair stand. Pekka Puhakka had done an exquisite job; all the pieces were ready. He had assembled the stand completely previously, and taken it apart again for transport. The decorative components looked better than in the model. He had finished constructing, building, and painting it all by himself one week ahead of time. I was grateful and happy. Not all hope was lost; at least someone could be relied on.

The organization was then, one week before the deadline, where it was before the summer. Nothing had changed, nothing had happened, not one confirmation for hotels or transportation. After me urging him repeatedly, the person in charge had finally booked our exhibition space at the fair, only hours before registration had closed for good. We got lucky. Would we get lucky next time, for we would need a lot of luck for a lot of things? I did not even dare to ask if there would be somebody taking care of promotion of the school, or my project, let alone complimentary tickets for my sponsors. I had asked earlier, and not only once, but nobody reacted, responded, or seemed accountable for. It would have been easier to do, and easier on my nerves, if I had not transferred these responsibilities to someone else. I found that checking up on someone that an important task gets done, was more depleting of my time and energy than doing it myself, especially when I had to carry the consequences of

neglected tasks, even if it was not my job to do. Instead of wondering and worrying all the time if a reservation in fact had been made, I much easier could have been taking care of it all from the beginning. I would have had less work than constantly checking up, and less worries. Doing it myself, I would have known that it would have been done, and done correctly. The sharing of ideas, work, and responsibilities is an emphasized prerequisite in productive creative work, including recruiting and committing others to a project, and holding them accountable¹⁰⁰. I did try from the beginning of my project, but somewhere, somehow, I must have done it wrong. Or did I do it right, but with the wrong people? Either way, live and learn.

7.7 No Compromises, Period.

There was neither time nor room left for errors. I was afraid that I had worked all summer, only to not be able to show my work at the fair because somebody in charge did not care enough. I demanded that it be all taken care of immediately, or to hand all responsibilities and liabilities over to me. Sadly, this was only the beginning of a string of mishaps, lapses, and failures. Not to discredit anyone, but by stating those, and later, incidents I try to demonstrate that a non-cooperative, disinterested, and uncommitted environment is poison for a creative, and the death of a successful project. It does not matter if the poison is taken in small doses, or if the creative is a particular strong person, or the project powerful. Sooner or later, it will take him and his project down. And in the meantime, it makes life a struggle, kills joy, and creates doubt, hesitation,

¹⁰⁰ Scott Belsky, 2010, *Making Ideas Happen*, pp 138-140, New York, Penguin

and finally resignation. I honestly can say that I got depressed in the duration of this project, confused about the actions and inactions of my environment, feeling rejected most of the time, abandoned and alone, always having to fear for the premature end of the project, that all my work would be for nothing.

But I survived, and so did my project! I got stronger, more knowledgeable, and even more affirmative in my qualities and standards. But it came with an emotional price of frustration, anger, disappointment, and discouragement. Design work should not be about negative emotions and motivations, let alone negative results. Creativity should not be struggle. It should be the result of flow. To allow flow, I cannot allow any compromises, not in my work, and not with the people I work with. But for the time being, I had to suffer the consequences of my compromises. Still, I had some ways to go until the finish line, and some more blows to take. Before I started this project, I thought of myself as not able to take care of it all. That was the reason why I kept asking for help, insisting on transferring some of the responsibilities. As nobody felt accountable, somebody ended up with the responsibilities, somebody who did not want them, and, of course, did not want to commit to them. That resulted in a person being in charge of organizing, who did not want to be in charge. And that created the neglect of vital things that should have been taken care of with diligence. Such were the causes and consequences of my compromises, and I had to deal with them until the fair was over.

I began taking charge in organizational matters. To schedule, book, and confirm the transport of "The MoROLL" to Helsinki, and back, one short phone call was

required to take care of it all. Before, several phone calls, e-mails, text messages via cell phone, and even meetings did not accomplish anything.

I took Kirsi-Marja to see the finished chair at Paavo's workshop. I wanted her to get a feel for the finished product, so she could help me to make the final decisions on the material for the covers of the seat cushions. I was appealing to a woman's eye, intuition, and feeling. I wanted her honest opinion and input. As I was immersed in that project for the past five months, I could not see the forest for the trees. I felt I was too biased and anxious to make a decision.



After sitting in the chair together for a while, touching it, feeling it, and looking at it from all angles, we went around the city, following the whim of our intuition. We visited furniture stores, flea markets, fabric stores, and hardware stores. We let products and materials inspire us, and we bought samples whenever we thought we had something close to a solution. We had found a material I had not considered before, and came up with a new solution for creating sitting pads. Wool, felted into strings, 10 mm in diameter, would be laid into a spiral wide enough to sit on. Those woolen pads could be glued to the sitting areas of “The MoROLL”.



From the very beginning of designing the chair, I had envisioned a woolen surface for the seats. I liked the contrast between the slick, shiny surface of the chair, and the raw and ragged character of wool on top of it. Another material that I had not considered before was artificial leather, which we had discovered in a fabric store. Its qualities were promising; it was thin, flexible, easy to bend,

stretch and glue, and inexpensive. It also was available in different colors, including a vintage look. And finally, we found layers of felt thick enough to withstand abrasion from sitting, but thin enough to bend around the foam profile, and hopefully flexible enough to stay glued to it.

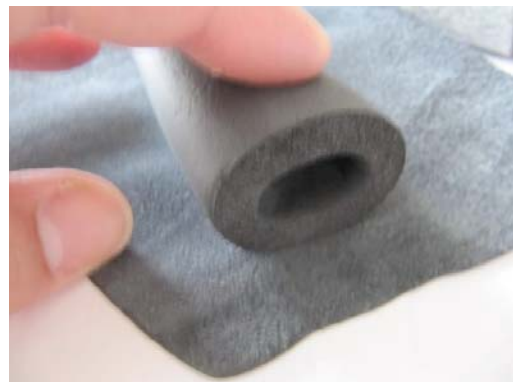
The next day was all about testing the material samples we had bought, and eliminating choices. It was important that we liked the material, but the main criteria for selection at this point in time were:

- It was to perform, to function, and be available.
- It was to be easy to glue, to connect permanently with the foam, even when under continuous stress.
- It was to be flexible, and stay flexible after the glue has hardened and dried, as it would be under continuous stress.
- It should not reduce the cushioning of the upholstery.
- It had to support the design as a whole, not distract as an effective detail.

We started the tests with the material samples by cutting stripes wide enough to wrap around the D-profile of the cell-foam core. Would the material adapt to the shape of the foam, if it were flexible enough to stay on when squeezed, or would it separate from the glue and foam under pressure? The felt sample was performing worst. It would not connect with the foam, no matter what kind of glue I used. It was too stiff, and its woolen fibers would act like a sponge, sucking up the glue. Artificial felt, made from acrylic fibers, was supposed to be more flexible, and less porous, but it was not available locally. Natural felt in

string shape to form sitting pads was not the feel, look, and quality I had in mind for my design. That eliminated felt as material for the covers of the seat cushions of the “The MoROLL”, at least for its prototype.





Next, I compared the properties of natural leather versus artificial leather. While the artificial leather was easily workable, and performed perfect under pressure, the natural leather not only looked better, but also gave the cushion a quality, which the artificial leather could not. The endings of the cushions remained open, showing the gray color of the foam core. Pulling the cover material over the endings resulted in a bulk of cover material on the bottom of the cushion, making it uneven. Insulation foam was also available in black cell-foam rubber, but it was much softer in structure. It would collapse under pressure. Our last option was to color the endings.



I went to the school's workshop, to experiment with paints, and different glues. Thinner-based spray paint reacted with the cell-foam, dissolving it. Acrylic paint, applied with a paintbrush, dried fast, and seemed to have no negative effects on the foam. It seemed to be scratch resistant, and flexible enough to not break or chip when squeezing the foam. Testing continued with different kinds of glue and different cover materials. The proper glue needed to connect with the cell-foam without disintegrating the rubber, and stay flexible after curing. I made several samples of the same material using different kind of glues. Milk glue¹⁰¹ was recommended when working with textiles and leathers, but it would not combine with the cell-foam. Other glues were different brands of contact glues. Contact glue in spray form was too thin. It would run off the foam before the cover could be applied. The thinner contained in it would disintegrate the cell-foam. That left me with a brand of contact glue called Kestopren, which worked the best. The upholstery master also recommended it. Of the cover materials, synthetic leather performed the best by far. It was easy to glue, flexible, and was thin enough for its ends to be folded under, thus creating a flush finish. It

¹⁰¹ Glue made from natural gum, with its color and consistency resembling milk

looked good, but it felt artificial, and squeaked when sat on, which immediately eliminated it as a quality choice.

At the upholstery workshop, I asked Tapio Tahvanainen about techniques for gluing and cutting upholstery. He showed me, how to best do it, and recommended a rolling knife similar to a pizza cutter. That knife would prevent the material to wrinkle up when cutting. I inquired about prices for different kinds of leather. As artificial leather was not an option, real leather became my favorite material for the seat covers. I estimated that I would need a complete hide, which was about 2 m² of leather. The price for a hide was € 250, -, which I could not afford. I asked, if he would be interested in sponsoring my project. I offered to display his logo at the fair stand in Helsinki. In return, he offered me 50% off the sales price. He gave me a few stickers with his shop's name on, and a whole hide of black leather. I had my second official sponsor.

Back at Paavo's workshop, I assessed the amount of materials I would need. I made a paper template covering the whole sitting area. On it, I marked the spots where the user's body would touch the chair, indicating the length and width of the sitting areas that needed cushioning. One side of the chair had five areas to cushion:

- For the head 2 cushions,
- For the upper back 3 cushions,
- For the buttocks 5 cushions,
- For the legs 3 cushions, and

- For the feet 1 cushion.

That made 14 cushions per one side of the chair. The surface of one cell-foam core to cover was 0,078 m², with 65 cm long, and 12 cm wide. With 28 cushions on both sides of the chair, I needed 2,18 m² of leather. I also needed glue and double-sided tape to mount 9,80 running meters of D-profiled cell-foam onto “The MoROLL”.

At Kummipörssi, I stocked up on glues, tapes, and insulation foam I needed. This was to be my last stop, as the clock was ticking. I only had 4 days left until departure, every minute counted. I had to get to the school’s workshop, and continue to work until finished, without any more interruptions. I would have to be very effective with my time, and my work. I drove around town, making sure that I had all the supplies, tools, and materials I possible could and would need, and prepared for long, continuous, uninterrupted working days.

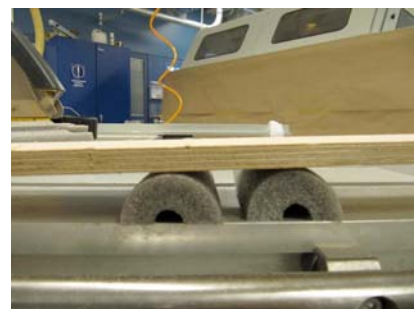
For the next four days, we would only leave the school’s workshop to go home to sleep. I had asked my girlfriend Kirsi-Marja Moberg to help me with the work. Without her, I would not have been able to get it all done in time. The goal was to make 28 cushions. If my resources would afford it, I would make 30 to have some spare if something would go wrong when gluing the cushions to the chair in Helsinki. There were five main working steps:

- Cut the foam cores, and prepare them for gluing.
- Blacken the ends of the foam cores.

- Cut the leather, and prepare it for gluing.
- Glue leather on the foam cores.
- Furnish the cushions with double-sided adhesive tape on the back.

It sounded easy, but it took many small, medium, and large steps to get it done, and problem solving and design thinking on every step of the way. The work ahead needed time and care. None of the processes and stages could be rushed, accelerated, or skipped. The following steps were carefully planned, and we stuck to the plan. We executed them like clockwork, one after the other.

First, I had to cut 60 cm long D-shaped profiles out of 100 cm long cell-foam insulation tubes, circular in profile. For that, I shortened 15 foam sticks to 60 cm with the circular saw, and then cut them lengthwise into half with the band saw.

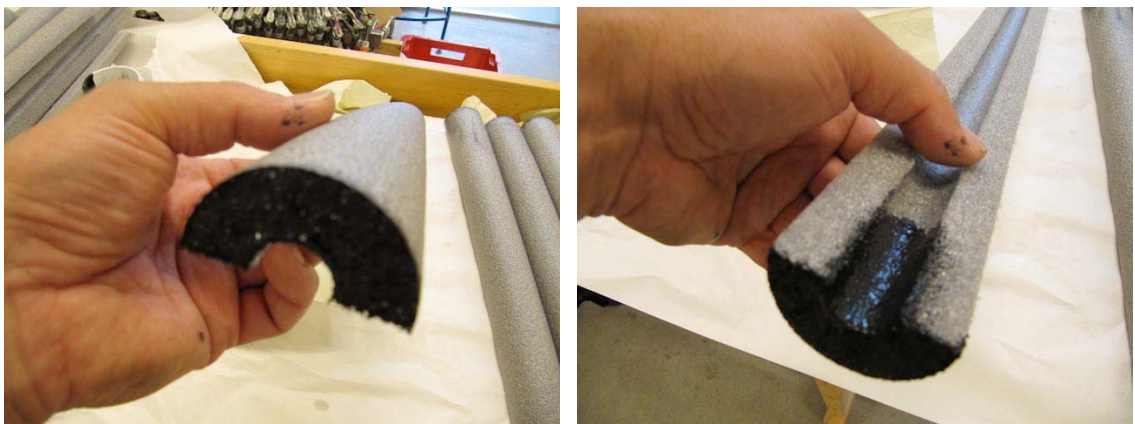


After the first cuts, I realized that I did not cut precisely in the middle; I ended up with a larger and a smaller side. I built a guide for the band saw, and a tool with which I would be able to push the foam through the saw, to avoid injury. I fastened the saw's metal guide to the left side, included the width of the saw

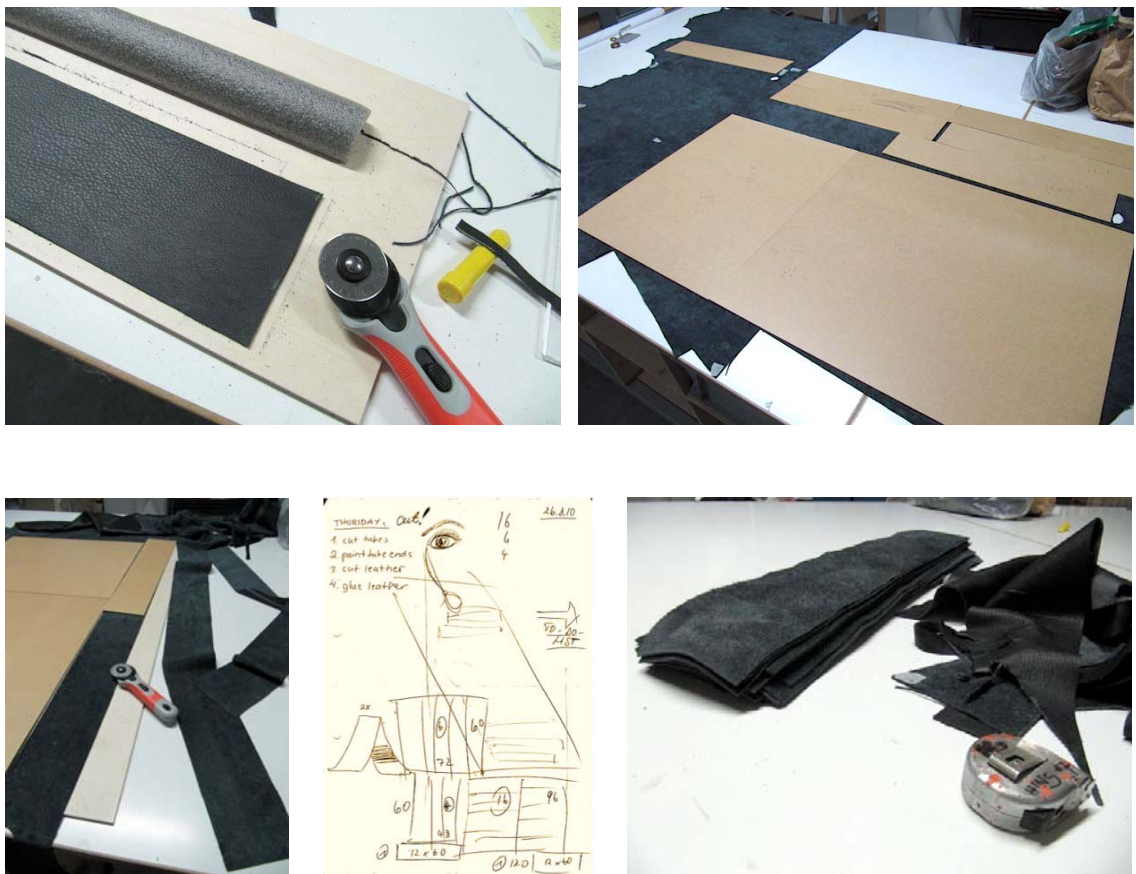
blade into my calculation, and attached a straight wooden beam with clamps to the right. Using scrap wood, I had cut thin plywood to the width of 50 mm, the foam's diameter. I test-cut several pieces, until the cut showed exactly in the middle. That piece of plywood I also used afterwards as tool to push the foam through the saw.

Next, we blackened the endings of the foam pieces. We used a paintbrush to work the paint into the cells of the foam. We also painted of a part of the underside of the foam, the inside of the arch. On either side, the first 3 cm were visible when viewed from the top. Caution had to be used to not get paint anywhere else on the foam, for it would prevent the glue to connect.



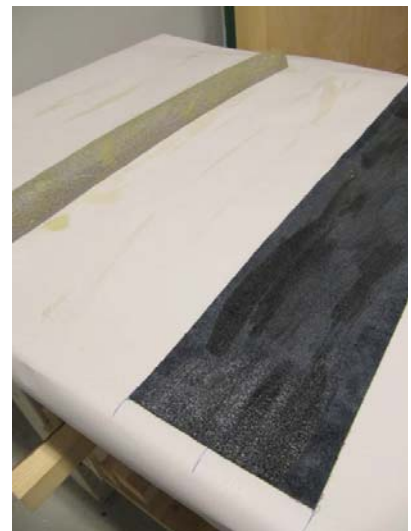


Then, it was time to cut the cow. While Kirsi-Marja took care of the painting, I went upstairs into the school's textile department. On its big cutting tables, I was able to spread the leather hide. It was a full hide, uncut, its shape still resembling the animal. With no extra material to spare, and no angles or lines to orient by, I would have to find a way to exactly and effectively cut out 28 covers of 60 x 12 cm. For that purpose, I cut several templates from scrap plywood, each resembling one or a multiple of one template measuring 60 x 12 cm. It was like placing cookie cutters on a spread of dough, maximizing the amount of cutouts, while minimizing the waste. I placed a big template in the middle, then arranging the smaller templates around it. Once I had found the ideal placement, I marked the position of the templates with a chalk pen, as used in textile design. Then I cut along the marks, with the help of a metal ruler and the special roller knife I had bought for that purpose. I managed to cut 29 seat covers out of this one hide, leaving almost no waste. I was relieved.



It was almost 10 pm at night; we were tired, but not done yet. We needed to finish the first cushion, so the glue could cure over night. With no time to spare, we needed to know that the glue bonded with the foam and the leather, that it would connect permanently, and stayed flexible after curing, so we could start the next morning with gluing the cushions. The acrylic paint had dried, and we were able to start our first gluing attempt. Utmost care had to be given to cleanliness, as both glue and thinner would stain the outside of the black leather permanently. For that purpose, I created a production line with two lanes

in a side room of the school's main workshop. We cleaned the room thoroughly beforehand to avoid any dust to settle on the wet glue surfaces. We arranged several worktables in two long lines, and covered them with masking paper. On the "dry", the clean side, we stored all the raw materials, and prepared both leather and foam for gluing. The gluing surfaces of both leather and foam had to be sanded, roughing the surface for maximum adhesion. Afterwards, all dust had to be removed with a compressed air nozzle. On the "wet", the messy side, we laid out the foam profiles next to their leather cover counterparts, glue side up. We only took "dry" materials to the "wet" side directly before the gluing process, to avoid contact with glue ahead of time. The glue would have hardened, and created unwanted bumps on the material. One person handled the wet glue, spreading it on leather and foam, while the other person waited until the glue surface was touch dry, and then glued both parts together, to avoid staining.





This was the last day before the weekend, and on Monday would be departure to Helsinki. If there would be anything that still needed changing or taking care of, that would be the day to do it. I made my rounds to Kummipörssi, Staffan

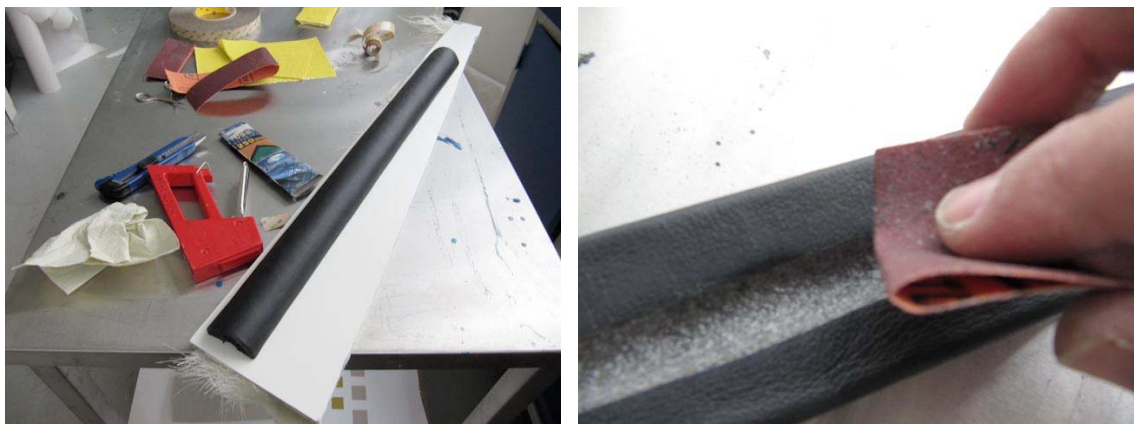
and Paavo, to check in, say thank you, and to stock up on provisions, just in case. At Paavo's workshop, I dusted off "The MoROLL" one more time, and braced it for the transport with transport belts, rope, and a thick plastic tarp. On its outside, I pasted the freight documents visibly with tape. "The MoROLL" was ready to leave the building. I expressed my sincere gratitude to Paavo, and left him with instructions for the pick-up by the transport company on Monday morning. At Kummipörssi, the manager himself saw me off, with excitement, best wishes, and an extra can of glue, just in case. I went also to Staffan, to thank Tapio Tahvanainen for all his help and support. To offer complimentary tickets for Habitare to my sponsors was the least I could do. To my embarrassment, NKUAS had not issued any. But I promised to arrange for tickets under their names at the reception desk of the fair grounds.

At the school's workshop, Kirsi-Marja and me glued all day as if our lives depended on it. We worked hand-in-hand, one applying the glue, the other gluing. We created a buffer of semi-finished cushions for the 10 minutes that had to elapse for the glue to be touch-dry, before the two surfaces could be glued together. We had several pairs of foam and leather in different stages of dryness. That way we were able to speed up our production process. By the late end of the day, we had finished gluing all cushions. The glue would cure out over night, and the following day we would be able to put finishing touches on each cushion. Tired, and high from glue vapors, we walked home, feeling accomplished and proud. Against all odds, we had managed to pull it off. We had finished our task one day before schedule. In that moment, after five long months, I felt on the safe side for the first time since the beginning of the year.

We were not in Helsinki yet, the stand and the chair have not yet been set up for presentation, but we were out of the rough. Thanks to Kirsi-Marja, who stood by me and helped me hands on.

The last day was about finalization and completion. Once the chair would be set up and leveled at the fair stand in Helsinki, a double-sided adhesive tape would be used to mount the cushions on “The MoROLL”. Before such a big event, any work that could be done in advance I wanted to get done. I wanted to leave as little as possible to chance. I wanted to be sure that the tape would stick to the leather on the back, but also to the slick surface of the fiberglass of the chair.





To prepare as much as possible, we would attach the adhesive tape to the cushions already now. The cushions would then be ready to be mounted on the chair. I had several different tapes to choose from, thanks to the generosity of Kummipörssi. I tested their performance first on leather. The one with the most promising adhesive binding we applied to one cushion¹⁰². We had made one extra cushion, and were able to afford a miss. To get a realistic test result, we glued a cushion to one of the cut-off ends of the chair, which I had salvaged from Paavo's trash bin. The connection was solid, and only with brutal force would I be able to remove it. Satisfied and assured, we provided all remaining 29 cushions with that tape. To maximize the connection, we sanded surface of the leather on the bottom of the cushion with 120-grain paper. I did not want to take any chances that one of the cushions could fall off. We imagined hundreds of visitors getting in and out of the chair, sitting in it, testing and investigating it, pulling on it, and children jumping on it. Our experiences a few days later would

¹⁰² Product name "3M VHB"

prove us right. After removing the dust with a jet of compressed air, we applied the adhesive tape.



For the final touches on the cushions, we cut the excess lengths of leather and tape. I had brought nail scissors from home, ideal for that purpose. Kirsi-Marja took care of that tedious task, as well as the fresh cut surfaces of the leather, which had to be blackened with a permanent marker. And finally, the black acrylic paint on the visible sides of the foam cushions had to be carefully mended. Kirsi-Marja used a small paintbrush to touch up the paint where needed. In the meantime, I started the clean up. After all, we had occupied and used three different workshops inside the school over the last few days. As we had to work fast, we created a lot of dirt. While the paint was drying, we cleaned up the room of our production line, and rearranged the furniture in their original order. Finally, we carefully wrapped our cushions in paper, and into one happy bundle of joy of completion and fulfillment. This little package contained over 100 working hours, and over 500 Euros worth of materials, not to mention all

the ideation, research, and decision-making. If lost or damaged, it would have been devastating.



The last thing to do was packing up tools, materials, provisions, the cushions, and anything and everything that we could possibly need building the fair stand, setting up the chair, and being prepared for the unexpected. We arranged everything on a table for the day of departure, checking and rechecking that we would not forget anything. Another long day ended with satisfaction and exhaustion. But we were done. We had made it! And we had one day left to spare - to rest.

8 PUBLICATION

8.1 Vague Until Unveiling

August 30, 2010, the day to set sail had arrived. I met Riku Rantala and Pekka Puhakka at 7 am at the school's workshop to load up the van. We had planned to leave as early as 8 am. We would need six hours for driving to Helsinki, no unscheduled events provided. We had planned to build the fair stand in the remainder of the day, so that I would have the next day to set up the chair and to mount the seat cushions. I definitely needed a full working day, plus a helping hand to accomplish finishing the chair. But the rental van, which had been reserved earlier, was not available in the morning, and would not be delivered until noon. I was pleading with Riku to demand an immediate replacement for the car, or to call another car rental company, but was unable to convince him to take action. He preferred to wait. It stopped, before it even had started; somehow, I was not surprised. But sit around I could not.

I did not wait, I designed. I constructed a template tool, which would allow me to mount the cushions straight lined, level, and in regular distances from each other and from the outside rim of "The MoROLL". I searched the wood workshop's trash bin for befitting building material. I found a straight wooden beam, 30 x 60 mm in diameter, 1000 mm long in. I cut its length to 700 mm. From the rest, I cut three short pieces, which were to form a U-shaped profile to

go over and around the rim to the side of the chair, touching on the outside of the rim. The surface on the outside of the rim was regular, a reliable reference point. The inside of the rim could not be used for reference; it was uneven, making for irregularities in distance to the center of the chair. The cushions were to be parallel to the ground and to each other, centered exactly in the middle of the chair, following its curvature and circumvolution. To properly shape the U-profile for its intended purpose, its parts had to be all in a straight line, and all angles had to be exactly rectangular. I drilled preliminary holes at the location of the screws. I used two long wood screws on each side of the profile, to ensure that none of the parts would twist. In connection with a level, the device I had designed was to be used as a gauge. Markings would indicate where to place the cushion on the device, so it would end up level and center on the sitting surface of "The MoROLL". I could attach the device with bar clamps to the chair, which allowed me to work by myself if I had to.



The van finally arrived at noon. We loaded first the prefabricated pieces of the fair stand, and then our tools, bags, and boxes. Before we would leave town, we had to stop by Paavo's workshop. The transportation company had asked to wrap "The MoROLL" in clear plastic, to ensure that it would not be damaged. The forklift operators would be able to see the content of the freight, thus be more likely to handle it with care. We wrapped it as best we could, and started our trip to Helsinki.



We arrived at the Helsinki fair grounds at 6:30 pm, fortunately without any further incidents or delays. Better late, than never!





We unloaded the van, started to unpack, and arranged the components of the stand. The back wall measured 350 x 600 cm, the side pillars were the same height, and 200 x 100 cm in diameter, 100 x 100 cm respectively. Because of their large size, they could not be stored anywhere safe, leaving us no choice but to start installation right away. We put up the back wall where it was supposed to stand, and attached the side pillars for stabilization. One of floor components still needed carpeting, before we could install it on the ground. By 9:30 pm, we had erected the fair stand, and were happy to retreat for a short night to our hotel rooms. The next day, Pekka and Riku would have to install the decoration items. Provided that “The MoROLL” would get delivered in one piece and in time by 10 am in the morning, my job would be to screw the chair into position, and glue all 28 cushions to the chair.

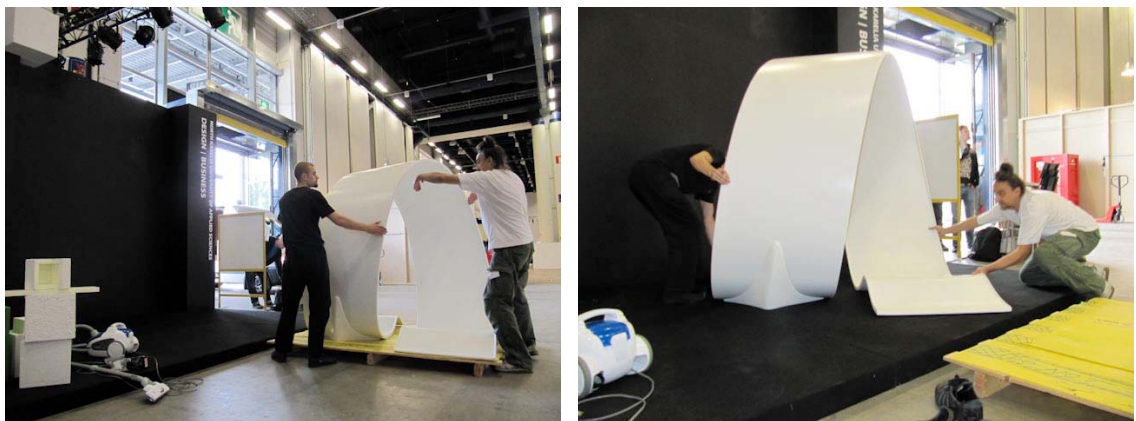
The next morning, the chair had arrived, in time, in one piece, and without any damage. What a relief! In that moment, I almost believed that nothing could go wrong anymore. First, we began together to mount the decorative cubes that Pekka had made from Styrofoam and plaster. It was a major design element in our stand, differentiating us from surrounding exhibitors through a unique and

fresh look. The cubes added dimension and color to an otherwise black and white presentation. Pekka had prepared the installation well, and mounting the cubes to the wall would have been easy and fast. If I helped them finish the work on the stand faster, they could help me finish my chair.



We just had started, when a supervisor stopped by our stand to inquire about fire safety. It turned out that we had to wait for a safety inspector before we could continue. He did not allow us to install those cubes, as they were not built according to fire safety regulations. Neglectfully, the person in charge had not read the information that was sent to him, neither had he passed it on to Pekka. That oversight nullified half of Pekka's design and work, sent most of the decorative components straight to the trash, and left us with a blank black stage. It also put our whole timing at risk. Both Riku and Pekka would be

occupied for the rest of the day to come up with a substitute, which left me with the work on the chair by myself. I knew that I was in deep trouble. Time to call in the cavalry. My friend Usi Riikonen was in town. One call, and she was on her way. Until then, we moved the chair onto the stand's platform, and I tried to find the right position for the "The MoROLL". Once I had found the right position and angle for the chair, I bolted it on to the floor of our stand. I immediately got started on the mounting of the cushions. There was no time to waste; we were in the last hours of the last day.



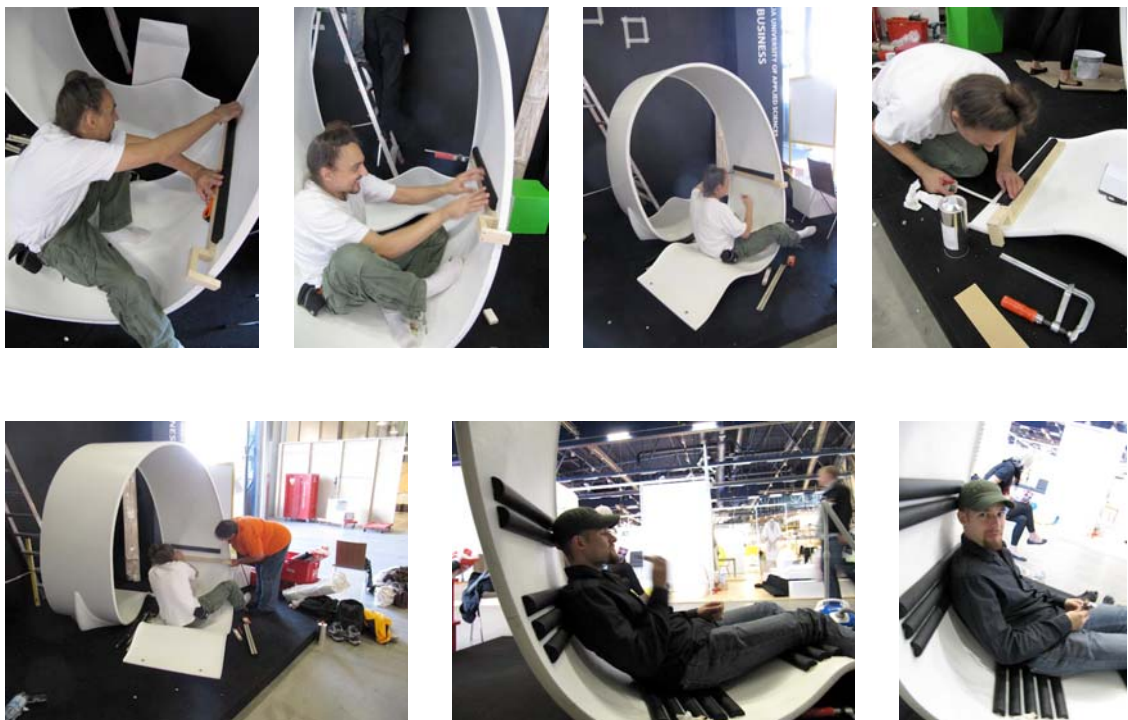


Riku and Pekka started to paint squares onto the black back wall, to replace the cubes. A sad solution, flat and unimpressive compared to the liveliness of the original design, but it was probably the only alternative at this point. Pekka was trying to keep a straight face, but I could see that his spirit was broken. I felt for him. He had put so much thought and effort into his design, only to see it go to waste. I felt with and for him, as it was exactly that situation which I had feared myself. I was afraid of arriving at Habitare, and not being able to show my chair for the reason of somebody's carelessness. I could see that my fears had not been unwarranted. I would have liked to help him with solving that design dilemma, and to motivate him, but I could not occupy myself with anything but finishing "The MoROLL". As I had relied on their help with finishing the chair, our misfortune affected me as well. Now on my own, every minute counted. I was only glad that the inspector did not close us down completely, as he did with the stand right next to ours. If he would have rejected our floor construction, I would have not been able to set up my chair. I started to get anxious. After all, this was not a game, and I realized, that our man in charge was not in charge at all. He took not care, and could not be relied on. That was

playing and messing with my design, my work, more than a year of my life, and my possible future. I was heartbroken and furious.



I began mounting the cushions to the chair, from the top down. By first gluing the top cushions on both sides, I assured that they both were not only level to the ground, but also both at the same height and level to each other. I used my specially devised gauge, a level, and a large bar clamp. Next, I glued the cushions at the very end of the chair's footrests. Their position was predetermined, as they had to cover the two screws on each foot end, holding "The MoROLL" in position, and they had to be parallel to the cut end. As the clock was ticking, I became increasingly nervous. I could not afford any mistake, so I measured again and again, making sure.



Not one minute too soon, the cavalry came. My friend Usi came to the rescue. I had to handle several tools at once, so a pair of extra hands was exactly what I needed. That alone sped up the process considerably. Her friendly spirit dispersed my nervousness, and brought back my confidence. What a blessing in all that chaos! Soon, we not only saw progress, but perfection. After one side of the chair was finished, it looked and functioned perfectly, just as I thought it could, but did not dare to hope. My biggest concerns were swept away, that I would have miscalculated the seats, their thickness, their placements on the chair, or that the curvature of the chair would not harmonize with the human body's proportion. All of that could not have been known until now, neither could I have foreseen its final looks. But there it was, and it was good. Perfect!

The experiences we had made when gluing the first side allowed us to finish the other side of the chair much faster, and thanks to my helper. Not only did Usi see me through to the end, but also stuck around and helped cleaning up. With all we had to do to finish our exhibition stand, and my chair, we made it just under an hour before closing time. And there she was, “The MoROLL”. Impressive, clean, simple - and ready for showtime in the morning.



But no rest yet, as I still had to prepare a photo presentation, which was to run non-stop as a loop on a computer screen, placed to the side of our fair stand. We did not have any other relevant promotional material of my school. I edited much of the picture material included in this thesis presentation, hoping to inform the customers on how “The MoROLL” came about, and to give an insight into student life. After all, our stand was to promote and inform about NKUAS as well. My chair was to demonstrate what students of that school would be capable of.

8.2 The Moment Of Truth

September 1, 2010, was the opening day of Habitare, and the day of revelation for me. I had done the best I could, did not spare any effort nor expense; I had given it my all and everything, my vision, my talent, my hopes and dreams, and my fears and doubts. That day, I felt like I was revealing my innermost self to the public. I felt fear of criticism, and of being exposed, exhaustion mixed with excitement, joy with stage fright. And yet, there was nothing that I could do, other than to let it happen - and so I did.



The doors of the fair grounds opened at 10 am in the morning. The first 2 days of the fair, Wednesday and Thursday were for professionals only; the general public had access from Friday noon onwards. I was nervous what people would say, especially professionals, but mostly I was excited about this opportunity to

show my design on an international platform. I could not wait to get to our stand. I got there early in the morning, giving my “baby” a last buff. Before I even could collect my thoughts, the first people came rushing in. It turned out that the media had a head start before anyone else. Within the first hour, they came flying by our stand. Informed ahead of time by press releases, they were on their way to get their stories. They did not look around; they knew what they were looking for. My past press conference was only for the regional media, and nobody in the capital of Helsinki had heard or cared about it. I was aware of my need for a national press campaign, but did not have the resources to launch one. A week before the opening, I started a feeble attempt, but it was of too short notice to get a story in. In Joensuu, I had contacted Sirkka-Liisa Salmela, a public relations manager for Viestintä Ässä¹⁰³. Although she would have wanted to help, and had connections to the media in Helsinki, she had to decline. As a last-minute attempt, I had sent e-mail to Alexis Kouros, editor-in-chief of SixDegrees¹⁰⁴, an independent English-language newspaper published in Finland. I was hoping of getting him interested in a story, but without reply.



¹⁰³ www.viestinta-assa.fi, 23.08.2010

¹⁰⁴ <http://www.sixdegrees.fi/6d/>, 23.08.2010

Due to our last minute bookings, our lot was at the furthestmost faraway corner of the fairgrounds, upstairs, and in the back. Most people who came by were already on their way back out, they had seen everything else before us. But some of the reporters were delighted, even surprised, for they saw something unexpected. Those who stopped wondered why they have not been informed prior to the opening, that they would have loved to make a story of it. They expressed regret as they had already other stories planned. A reporter of a national TV station came flying past our stand, stopped, and returned, asking for information. As I had no printed handouts, I gave her my business card. Later that week, she listed "The MoROLL" in the column "Best of Habitare 2010" on the TV-station's website¹⁰⁵. Umut Kart, public relations manager of Koleksiyon¹⁰⁶, a Turkish design factory with nationwide outlets, was interested, and asked information. I took her card, and promised to supply her with information via email. Anja Kontturi from the German-Finnish Chamber of Commerce came to express her interest. She suggested that I participate in next years AMBIENTE Interior Design Fair in Frankfurt, Germany. In her function working for both the chamber of commerce in Finland, and for the Messe Frankfurt in Germany, she scouted the Habitare fair for promising projects and talents. She in particular had expressed interest in a press kit. And again, I could not oblige, but would send her articles and links later on. Reality set in fast, hard, and early.

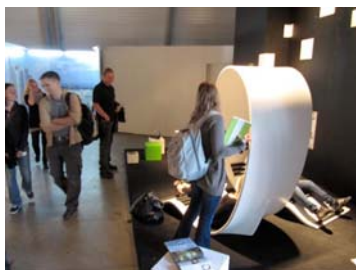
¹⁰⁵ <http://www.mtv3.fi/koti/sisustus/artikkeli.shtml/2010/09/1179211>, 23.09.2010

¹⁰⁶ <http://www.koleksiyonholding.com/en/default.aspx>, 23.09.2010



Painful lessons were learned in the first two hours of the show. Reporters obviously did not come to the fair to inform themselves, or to look around. They come informed, prepared, and search for what they came to look for. As their work, they cover what their publishers want or need. They have appointments for interviews, assignments for pictures and stories, and even if they would like something personally, they might not be able to cover it for the media. Printed promotional materials would have been crucial as handouts for the press, and

for customers to take with them, containing information about my product and me, and about our school. Some people were asking for it, and they could be helped with some information. But most of the people left without asking, and therefore without information, which did not mean that they were not interested. They just did not ask. We will never know how many people we have missed to inform. And last, but surely not least on my lessons-to-learn list, I had not prepared a press folder, containing previously published material about my design and me. Not that I did forget, but maybe I could not fathom the idea that people, and especially reporters, would be that interested in my design and me as a designer, that a press kit would be in high demand. I did not foresee that. A press kit would have been good promotion, and could have led to stories afterwards. I was angry with myself, because I saw that I was ill prepared. I feared that all this work we had put in would now go unnoticed, because I had failed to inform the press in due time. But how was I supposed to have done it all? Disheartened, I had to make the best of what I had in that moment.



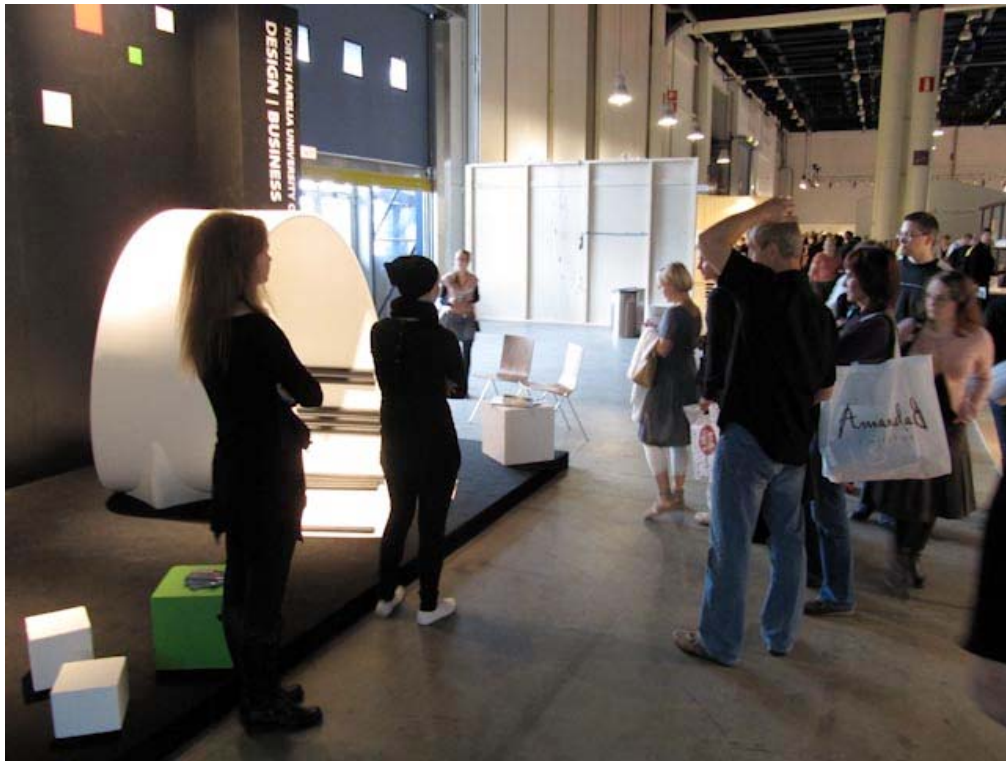
By midday, the rough start was forgotten. A never-ending stream of people paraded by our stand. Many stopped, stayed, investigated, asked for

information. Some were shy, unsure of what to make of “The MoROLL”. Most customers were intrigued, and showed their fascination.



A very few refused to sit in it; they showed a reaction of fear, probably of embarrassing themselves getting in and out of the chair. But by far the most of all customers, no matter what age or sex, whether consumer or designer, were excited, surprised, attracted, and curious to find out more. They were testing, sitting, touching, wondering, and simply loving “The MoROLL”. They had never seen anything like it before, and embraced it with their open minds. Often through out the day, we had a crowd of people gaping, taking photos of the

chair, and having others take photographs with them in it. It sure was an attraction. Built it, and they will come!



I invited people to sit with me in the chair, so they could experience its actual nature. Alone, a customer could find the chair comfortable and unique, but together opposite another person, he was able to understand the design. Its main motives were communication and connection, second to protection and privacy. Every time I sat with another person together in the chair, I could see how their mind relaxed, how they felt the design's intention. They understood intuitively, without words, only through experiencing it themselves. Most of the

professionals I had talked to over the days of the fair, I did invite to sit with me in the chair. All the words I had tried to explain the chair with before became unnecessary in that moment. Without exception, they looked at me, and nodded in comprehension and consent.



I had asked my girlfriend Kirsi-Marja to help me to take care of customers, as she knew “The MoROLL” hands-on. Riku had recruited two students to help to represent the school, and the design. With Pekka, we were six people to share an 8-hour day. We drew up a schedule, with ample of free time for everybody. But somehow, my girlfriend and me were left alone at our stand for most of the time over the next five days. It was only the first day, but I was mentally and physically exhausted, and could have used a break.

The first day left me with mixed feelings. On the one hand, we achieved success, we had made it, we had arrived. Habitare was real, and we were in it. I tasted success, but on the other hand, I was realizing what would have been possible with adequate resources. I was angry with myself for not having

prepared better in public relations. I was resenting my coworkers for displaying exactly the same work ethic that had made proper preparations in Joensuu impossible. I was drained, my head and my feet hurt, and I felt a flu coming on, a sign of utter depletion. I should have felt victorious, but I could not help myself but feeling defeated. Full of success, I felt empty.

8.3 Professionalism

On the second day, I talked to a good amount of designers, design teachers, architects, professors, producers, and international journalists. I received criticism, and, although fearing it, I was looking forward to it. Constructive criticism could only improve my design. But most criticism I did receive then were only attempts thereof. Some professionals, especially designers, admitted that they were initially intrigued by the idea, by its novelty and freshness, but also by its professional execution. Yrjö Kukkapuro, a Finnish design legend, passed by several times, curiously and slowly inspecting the chair, and trying to read the school's name written on our wall. I addressed him, and invited him to come closer. Before he did, he needed to know who we were. He could not believe that this school would produce noteworthy design. Then he started to inquire about the "set-up" of my design, the motivation behind it. I kindly answered his questions, but also insisted that, to understand, he had to experience the chair by sitting in it. He excused himself for not being able to. He walked with a cane, explaining he had recently his knee operated on. Yet, although uncomfortable, he could not resist sitting down. I sat next to him, and we continued our discussion about design. I could tell by his questions that he

was trying to find fault, a point for justified criticism, but he could not find one. I helped him to get up from “The MoROLL”, and he could not help himself but to compliment my design, “Very artistic, very fresh idea! Congratulations!”

Another illustrious guest of ours was Finland’s president Tarja Halonen, who had not scheduled to visit such remote corners of Habitare fair. But to the surprise of her bodyguards, and the TV and photo reporters accompanying her, she stopped and turned around, attracted by the unusual look of “The MoROLL”. Without wasting any time, she came over for a closer look. She was excited about this “Very good idea!” For a moment, she was tempted to sit, but then declined, probably because of the public nature of the situation, unsure about how to sit down in this novel sitting device, let alone how to get back up. What a surprise! Stunned as we were, nobody was thinking of taking a picture.

Some customers criticized the design of the chair, not after having sat in it, but only after looking at it, almost as if they needed an excuse for not having to sit in it. It was a young designer who felt it necessary to point out that it would not be for old people, while especially old people got excited and inspired about this sitting concept, and did not hesitate to have a sit in it. It was a tall man pointing out that it would not be for short people, while short people found it extremely relaxing, once they allowed themselves to relax into the chair’s organic curvature. And it was an athletic young adult who voiced concerns about users with back problems, and the possible lack of support in my chair. Some of the users who tried the chair had back problems, even back surgery, and found the arch of the chair supportive and comfortable. Contempt prior to investigation

could not be called criticism, but only the user's fear of something new. Men and women alike were confronted with a new design that challenged their old ideas of what a chair should be like, or what a chair should do, or could do. The chair was on a platform, but once the user stood on that same platform, the sitting surface was even with the floor. The seat would not come towards them; they had to lower themselves to get into that chair. They had to give up something; they had to invest into their own experience. They had to commit to it, to take a risk. Once on the way to the floor, they had to sit down, and sit down completely, without knowing how they would get back up. Also, it was not a chair to sit on, but one to sit in, one the user had to get inside to sit. To sit, the user had to give up, and to give in. Once inside, the user was not sitting, he simply was. Its openness invited in, and promised safety. Seated in the chair, the user felt safe, but was still visible from the outside; he could not hide. Relaxed, with his defenses down, he had to trust. Feeling safe, and being protected, he did not need to hide anymore, and his trust was rewarded. But first, he had to overcome his resistance to get to that point. He had to find out for himself. Only then would he know.

Those were the new experiences, the challenges, and the sacrifices "The MoROLL" addressed the audience with. I came to understand that some people needed time to allow themselves to accept that challenge. They negotiated if it was worth their offering. "The MoROLL" would not make it easy on its users, but most people intuitively knew that it was worth taking the risk. Older people and younger children demonstrated the least inhibition, and went straight for the new experience. They behaved as if they had nothing to lose. Middle-aged

men needed the most convincing. They either went for it after much hesitation and negotiation, or they refused altogether. But even those stood in safe distance of the chair for a long time, not daring to come closer. When invited to sit they would walk away, some even in a hurry. But once they started pondering, they ultimately would give in and sit down. And once they had tried it, they were convinced. Some customers even came back for a second visit, persuading their friends, spouses, or business partners to try the chair.



Among all the visitors, it was the children who made my day. To me, the spontaneous unbiased and throughout enthusiastic reactions of children was a surprising phenomenon. They screamed for joy when running through that arch “The MoROLL” created. They intuitively and immediately understood the purpose of the chair, the privacy of the space it created, its seclusion, and its safety. They explored it without inhibition. Older children investigated the chair by themselves, found it interesting, and took pictures for themselves. If I was able to design something that excited children without trying to convince them, but by provoking a spontaneous and genuine positive reaction through design itself, then I must have been doing something right, and there might be a good chance that I would be in the right profession. That the chair created a

protective, communicative space, which provided intimacy and comfort, I could observe also in another context. A friend of mine sat in the chair next to a customer neither she nor I had met before. After only a short while, they had exchanged phone numbers, and to my knowledge, had a date for dinner the same evening.

At the end of the day, when the stream of visitors subsided, I walked around the fair, promoting my stand, and inviting other exhibitors to visit. Here was another opportunity for distributing promotional material, which had to let go unexploited. I had business cards, but they would show only a picture of mine, and my phone number. A little flyer would have done so much difference, with information on my design or our stands location at the fair. I talked to exhibitors I thought could be interested in my design. As I had nothing to hand out, all I could do was telling about my design, and trying to explain it. I would notify them of our stands location, in the hope that I had managed to create enough curiosity, that they would try to find me. Although unprofessional, it was the best promotion I could do at that point. I had to leave it at that.

I went to visit the stand of Punkalive¹⁰⁷, a Finnish furniture producer. They used a similar construction technique for their furniture as Frank Gehry had used with his Wiggle Chair, laminating the profile instead of the surface. In the beginning of my project, I thought of using a similar technique with “The MoROLL”.

¹⁰⁷ <http://www.punkalive.fi/en/>, 23.10.2011

Punkalive used Kerto¹⁰⁸ instead of cardboard, a robust and straight wood laminate. I was glad to see at their stand that they were able to produce large size objects. I felt that their innovative furniture production technique and my chair would have made a good team. I asked the managing director, Jukka Rissanen, if he would be interested in producing a chair. The chair I could only describe with words and hand movements at this point, for the abovementioned lack of promotional material. He seemed perturbed by such direct approach. With nothing to lose, I managed to convince him to accompany me to our stand, which was only meters away. Reluctantly, he followed me to have a look at my chair. Was he too important to be caught off-guard like this, or could he not comprehend that such design could come from somewhere and somebody he did not know, but almost angrily, he walked off, not without having a detailed look, of course. My conduct might have been considered unprofessional, or at least unconventional, but I always behaved politely, friendly and respectfully. However, I could not please everybody, and not everybody would have to be pleased with me.

¹⁰⁸ <http://www.finnforest.co.uk/buildingconstruction/engineeredtimber/Pages/Kerto.aspx>, 10.10.2011

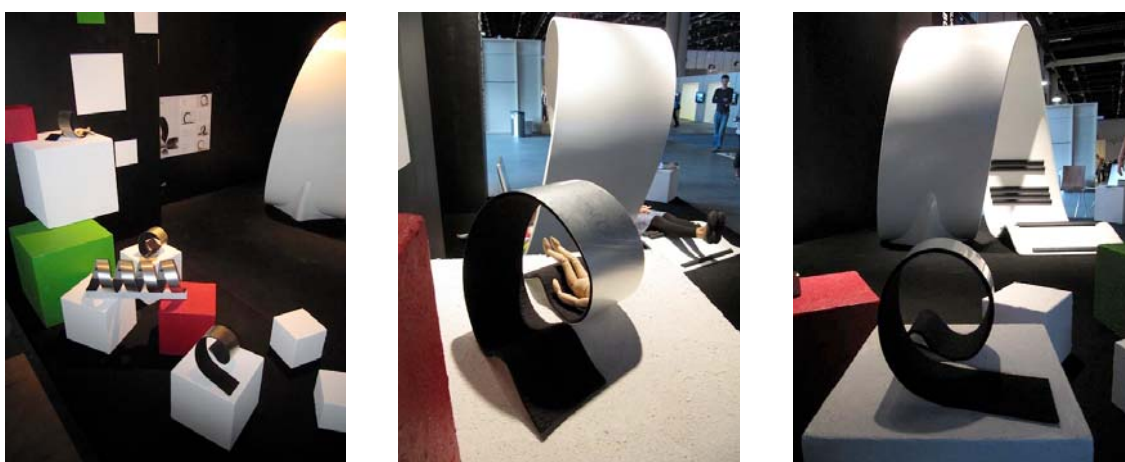


From its third day onwards, Habitare was open for the general public. As this was a furniture and interior design fair, the interest was immense. Everybody from housewives to homeowners, design enthusiasts and students, families and couples, whoever could be interested in anything from a light bulb to a bathtub would come for a stroll over the fair grounds. School classes would visit by the busloads, and so would our school, or so I thought. Our school's director Raimo Moilanen visited briefly, so did some teachers from different departments of our school. But not one design student from my class came, none of my design teachers, and hardly anybody else from the whole design department. I was disappointed and sad. I felt hurt. There is much meaningfulness in peer

recognition, and I would have felt acknowledged and validated of my work after this long, hard, and rather lonesome road. On the other hand, students, teachers, and professors from schools and universities all over the country, and from outside Finland took great interest in my design, and inquired about my school.



I had arranged for tickets for my sponsors at the reception, and I was delighted to welcome both Timo Väyrynen of Kummipörssi, and Tapio Tahvanainen of Staffan at our stand. We had managed to integrate their logos into the design of our stand, and our sponsors were impressed with the chair, and its presentation. Neither of them had seen the finished product before. Both have sponsored me on trust alone. Many personal friends came and visited, even if they did not particularly care for design. They came like friends come to an art opening, to support and to pay their respect. Some brought small gifts, others flowers. Their visiting meant a lot to me.



I had many more inspiring talks with professionals. The accomplished Finnish architect Kari Leppänen¹⁰⁹ spent quite some time sitting in “The MoROLL” with me, discussing its usefulness for public spaces, and its exciting qualities and possibilities. With the aid of the 1:10 models of the chair, which I did exhibit at the side of the stage, we pondered possibilities for airports and open spaces. He suggested that I contact Pekka Timonen¹¹⁰, who was not only a personal friend of his and fellow designer, but also the executive director of the World Design Capital (WDC) in Helsinki in 2012. Kari was convinced that Pekka Timonen would be looking for precisely that kind of projects like “The MoROLL” to exhibit at the WDC event. Aurestina¹¹¹, a special furniture production company from Vilnius, Lithuania, was inspecting the chair thoroughly. Its manager and owner, Aurimas Jankūnas, expressed sincere interest in producing the chair. We discussed options for materials and production

¹⁰⁹ www.leppanenarkkitehdit.com, 23.09.2010

¹¹⁰ <http://wdchelsinki2012.fi/en/contact-information>, 23.09.2010

¹¹¹ <http://aurestina.lt/en/>, 23.09.2010

processes. He was excited about my design, and came back later in the day to introduce his associate to “The MoROLL”. I talked to Marko Ståhlstedt, managing director of the innovative company Soften¹¹², about an eventual co-production. Soften produces acoustic wall panels made from polyester felt cloth, a material I had considered earlier as seat cover for my chair. A potential buyer came by the stand several times. She was trying to convince me to sell the prototype to her. After several lengthy friendly negotiations, she had offered me € 3.000, - for my chair. But I could not, and would not sell a prototype. If the chair were to go into production, its prototype would be the giver of the form. As keeper of all made mistakes, and won victories over design problems, it would always remain an invaluable teacher, and the foundation of any further development. I insisted that I would not part with the prototype, ever. But I offered to get in touch with her the moment I had produced a first-off.

8.4 Un-Professionalism

As much excitement, new insights, input, and feedback the first days brought, they also brought old problems, and much cause for frustration. My girlfriend Kirsi-Marja did together with me the lion share of the work around the stand. We were presenting and representing, talking, informing, inviting, greeting, addressing, and animating people to sit down all day long. If it had not been for her voluntary and uncompensated continuous presence, I would have been left standing alone for the most part of the day. Although Kirsi-Marja was scheduled to work, the person in charge did not arrange for her own access pass, neither

¹¹² <http://www.soften.fi/english/>, 23.09.2010

did she receive any meal tickets, nor was a reservation made for her stay in a hotel. Without a pass, she could not get in or out of the fair grounds, neither to the hotel, or the restaurant. Every morning, I smuggled leftover sandwiches from the hotel's breakfast buffet into our hotel room, and after that, her onto the premises of the fair. At night, I would smuggle her back into the hotel. For lunch, we split the meal I would get for my meal ticket, or I would pay for her meal. Food at the fair was very expensive, and I could not afford to pay for both of our meals for five days. We were more on survival mode than in a festive mood. We were tired, hungry, and exhausted, not a good state to be in when we had to be friendly and polite all day. It that was an intended part of my design education I cannot say, but it sure made for inventiveness, innovation, resourcefulness, and some more "sisu".



On the upside, many more friends came to visit. It was the weekend, and people had time for a visit at the fair. Many families with children came, and stayed to have a closer look at "The MoROLL". Often, the children themselves took the initiative in approaching the stand, attracted by the wondrous form of the chair. Their parents followed, and watched them jumping, crawling,

climbing, conquering, investigating and experiencing the chair, before they tried it for themselves. This took no influence or intervention on my behalf. I did not encourage them, nor regulate them in any way. I stood to the side, and watched in amazement. Not the critical agreement or disagreement of a conceited design professional, not even the loving support of friends, but the unbiased joy of children was the ultimate proof that my design was a success. Design professionals would criticize to prove themselves. Friends would support me because of them being friends with me. But this design eventually became a success when it did successfully what it was designed to do: to create a private place in a public space.



8.5 This Is It!

That was it, that chair, that design, that experience. That was what I had in mind. I had not wanted to design just another chair. As a matter of fact, I did not even set out to design any chair. From the very beginning of the design process of “The MoROLL”, I did want to change an experience, or to create a new one. We are all familiar with this experience, to sit uncomfortable and neglected in a public space. The space is wide open, and we feel uncared for, unprotected, unsafe, and vulnerable. We are exposed to high or no ceilings, people walking by, and cramping us. We are exposed to air, temperature, and noise of the environment around us. Often, we are forced to stand or sit in such places for a longer period of time, for example when waiting on transportation. Even our every day environments, where we are supposed to either relax or perform, are designed in such hostile manner, office buildings, malls, entertainment and cultural centers; nowhere to feel safe, to relax, to be not bothered, to simply be. And yet, we do not question it, we don't complain, we take it as if it were supposed to be that way, and we would be the one who would have to learn how to adjust to it. I did question it, not only the situation as it presented itself, repeating itself relentlessly, as if we would not have a choice nor a say in it, but also the possibilities in changing it.

8.6 Feeling Pissed Off By The Shitty Stuff Around Me

This quote by the Australian Designer Marc Newson¹¹³ is expressing my main motivation for design, and primary origin of ideation, or to say it with the title of a book about the designer Stefan Lindfors, “Driven by Love And Fury”¹¹⁴. The more I thought about public solutions offered around me, the more they insulted me. Not only did they seem to lack intelligence, with the general public too lethargic to react, or demand different, but also did they lack care for the basic needs of a human being. My motivation, my “set-up”, as Yrjö Kukkapuro called it, was that I wanted to design a device that would transform an experience from naked, desolate, and lonely exposure in a public place, into a personal, communicative, and connective relaxation in an intimate and private space. All along, I did not have a book or plans to follow, but I had a vision of how it should feel, look and function once it is done. All throughout the design process, it was nothing but my intuition that guided me past another problem to an answer, and onto the next step. All along, I had that feeling of how it should feel when I sit in it, the vision how it should look like, and the faith and trust that it would come out just right. Most of the time, I did not know what “just right” meant technically; but I knew it intuitively. If I had allowed myself to focus too much on practical details, the result would have been different, or the chair never been built, as I would have scrapped the idea for “The MoROLL” altogether as impractical. I was interested in proportions, not measurements. Feelings I could not measure, but relate to, in proportion to myself. I had no

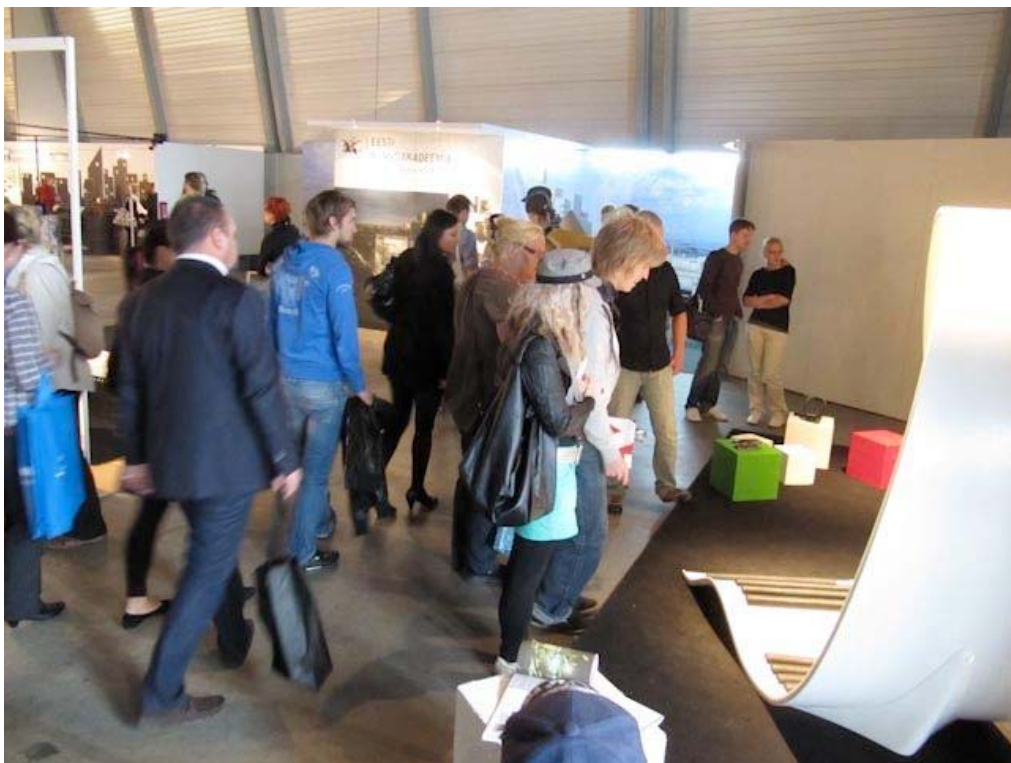
¹¹³ Marc Newson, 2009, *Never Use White Type on a Black Background*, p. 29, Amsterdam, BIS Publishers

¹¹⁴ Stefan Lindfors and Jörn Donner, 2005, *Driven by Love and Fury*, Helsinki, Aamulehti Kirjat

technical drawings, because I did not want to lose the feeling in the design of the chair. How would I have measured protectiveness, or interconnection? What would the dimensions have been for safety, privacy, or intimacy? Apart from me sitting in the chair myself, and experiencing what I had envisioned, the playing and even resting children ratified my idea without words. That was worth all the effort. It gave my design meaning and purpose.

8.7 Was That It?

Sunday, the end of the weekend was also the end of the fair. One could feel the general relaxed atmosphere, but also the loss of motivation in both the exhibitors and the visitors. Families were strolling past, and visitors showed interest. People came to watch and wander around, not necessarily to get informed, and definitely not for professional reasons. The general atmosphere was more that of a day in a public park, than that of a professional trade fair. Nevertheless, people came, and kept testing and using my design.



The moment the fair ended at 6 p.m., we had to start to disassemble our stand. I took “The MoROLL” down from the platform, and fastened it onto its transport palette. I used the screws fitted for its floor montage, and the transport belts over its top for extra suspension. I spread a thick tarp over the whole chair, and fastened it with rope. Within two hours, the whole stand was dismantled and everything was packed up. The chair stood by the door for pick-up by the transport company, which I had arranged for the next morning.

Exhaustion gave way to a strange feeling of emptiness. Was that it, all that work for a short moment in the light of the public? That reality was hard to grasp. But

yes, that was what “show business” in design seemed to be all about. And if I were a professional designer, I would do it all over again next year. If I could, I would. But for now, the show was over. “Elvis” had left the building.



9 CONCLUSION

9.1 Asking For Help

Asking for help, especially as a student, was an important lesson to learn. Not only did I get to know people, who were experts in their fields, but I also got to know the “system”. I reached an understanding of the way things work, or do not work, both in a social system, in this case a small town in provincial Finland, and in a professional setting. But there was also the environment of an educational system, which had its limitations and possibilities, its funds and resources, and its access to it, shared or not. And there was the scope of my particular education, and the school’s fields of focus. Most of the time, I found myself outside set limits with my project.

I learned about people, and I lowered my expectations, while raising my trust in my own instincts. I got to know the character of people, if, why and how they were willing to help, and why not. Some were willing to go beyond their line of duty, some tried to ignore me in the hope I would go away, and take my design problem and its challenges and responsibilities with me. Sometimes, I wished I would go away, if I could. But I could not, and I did not. I had big surprises, and big disappointments, but in both cases, I learned a lot, most of all about myself. The more I learned about people, the more it became a mystery.

Accepting help is almost as difficult as asking for help. The nature of my project did not allow me to avoid either. And finally, when things got really scary, when my situation seemed hopeless, without solution, help, time, or money, then another option presented itself, a possibility, a hint, or just somebody who I did not ask for help yet.

9.2 Not Giving Up

The big lesson in this big project was not to give up, not to quit, but to trust, and to believe in a positive outcome. Quitting was never an option to me, although prospects looked grim in between. The hardest times of doubt were when nobody else would support this idea, and I felt alone in a foreign country, where I did not speak nor understood the language, and where people kept to themselves. I experienced people withholding help and knowledge, and people inside and outside of school wanting me to fail, for they could not understand the designer or his design, nor would they want to be a part of it.

The newly spearheaded English-speaking design course I was attending claimed to be interested in foreigners, but maybe the infrastructure was not ready for it yet. As a foreigner, I had to fight against prejudice every day, be it just close-mindedness. I had to battle for simple things every day, like getting the school car when needed for school projects, getting the electricity turned on in the workshop, or even just having some space to work; things which my Finnish study colleagues seemed to never have to think about, let alone fight for. Language did not seem to be the problem, not the only barrier. There was

hardly any cooperation between students, foreign or native, or between the school's different departments. I felt forlorn amidst 400 students. But in the end, the experience taught me to rely on myself, and to go for something I believe in, no matter what, with or without support. Ultimately, it was as much of a testing ground for my design abilities, as it was a lesson in life.

9.3 Commitment

I also learned, how much commitment was necessary to complete such a project. If I would have known in advance the amount of time, effort, actual man working hours, and hardship, which I ended up putting into this project, I am not sure if I would have embarked on that adventure. I might have searched for an easier solution, or a less demanding project altogether. Yet, in hindsight, I would do it all over again. Not only was it worth it, but I also learned what worth is, what it takes to see a project through, against all odds and adversities, and to decide at every step if it is worth it all. Most surprising remains the fact of the lack of response of my environment. Not only did the school stay uninvolved, but so far, all industry, and professionals. Not only could they have advanced this design project to an industrial design, but also profited from it considerably, both in image, and financially.

9.4 The Future of “The MoROLL”

There is no question that this design is successful. It has been proven through positive and excited response by the public, the media, and through placements

in the upper ranks of several design awards. Now, that it has been published on an international stage, the questions to ask need to yield professional answers. If “The MoROLL” has a future, my questions would have to find the reason for the lack of resonance in the design market, for this is where its future will be:

- Was it the wrong time, or the wrong place, or both?
- Would the result be different with better public relations, or proper advertisement?
- How can the idea be sold to architects, the public sector, communes, and cities?
- How could I finance the next steps of product development?
- How could I attract investors, and producers?

If it were for my vision, then I see “The MoROLL” as an established design feature of public spaces. Its material will continue to evolve; its shape and intended use lend themselves to perpetual innovation and experimentation. Custom-made versions would grace executive offices, cruise ships, and VIP-lounges in airports. Specialized use is intended when offering it for the Formula 1 circuit, for drivers to relax in before the race, and for sponsors to post their logos. Good public exposure could be achieved by placing the chair in movies, or TV shows.

For its striking visual appearance, it was intended for a project called “HappyBirthdayHelsinki”¹¹⁵. When the World Design Capital (WDC) event is held in Helsinki in 2012, it also marks the 200th birthday of Helsinki as the capital of Finland. 200 copies of “The MoROLL” in red would be placed around the city, like 200 red candles on a birthday cake. They would serve to attract the visitors’ attention to design events, places of interest, or simply invite tourists and inhabitants alike to sit, in parks and public places around the city. Thus, a worldwide event would connect to locals, and locals would be challenged to change their everyday habits and ways. The WDC would have a face, an identity, and a symbol.

For its communicative qualities, it is thought to be the center of an installation called “The Throne of Truce”. For the World Peace Day, September 21, 2012, “The MoROLL” would be mounted on a platform in the center of Helsinki city. Guarded by two soldiers for 24 hours, anyone with an ongoing dispute or conflict would be invited to sit in the chair, and resolve it with his opponent.

¹¹⁵ Appendix 4

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APPENDICES

- 6 Appendices

World Nations Federation Log

Mars Godfather Meta Tron, September 13, 2020

Project: Mars Settlement in 2050

In 4 days we will introduce the new Mars Settlement Project for 2050. This will be done in front of selected people's representatives in order to work out a schedule for the next 30 years. Initial testing and visits to Mars are already in progress. For the purposes of settlement we must draw up an intelligent selective system for future Mars inhabitants. We also need an interplanetary justice system as a cultural guideline for countries on Earth.

The World Citizen Shuffle System has selected 25 citizens for their representatives. I will inform these chosen ones of their duties within the course of today. These individuals are citizens of the world representing every sex, culture, age and social status. I will act as advisor and also take care of all travel arrangements.

Each people's representative will travel with the World Nations Federation Travel System. Around 4pm the people's representatives will arrive at the Toronto Debate Forum and move into their Individual Home Base. The evening time is at each representative's free disposal. I, the Mars Godfather, will act as virtual host to each participant.

Meta Tron out.

End of recording.

The Silver Business Generation

Sören Nordstöm loves his job above everything. As the head of the department for urban planning, he is a bubbly 72-year old who has achieved great things in life. Regardless, he is still going strong and quitting for good is not even a thought in his mind.

Sören built a gigantic house for himself and his wife Lette with a huge piece of land right on the coast. It is supposed to be the perfect house for life in retirement. Some of his favorite aspects of this special building are: an organic food counter, a salon with a small antiquary and a trophy room for his favorite pastime: deep-sea fishing. The circular house is a kind of bungalow and offers about 2700 square feet of living space. All rooms are on one floor. The roof is blanketed with an Organic Gas grass patch, which combined with the geothermal system, allows the house to be completely independent of outside energy sources. Even if much of the house appears to be rustic and traditionally Swedish at first glance, the house is actually very high-tech and already customized to seniors' needs. Right now the age-appropriate architecture, the corresponding electrical system and interior are not necessary but for Sören and his wife it already is the perfect home. They never want to leave it again their whole life and so they make sure they can grow old comfortably in their home. The core of the house is a kind of axis centered in the bath and restroom areas. This part of their property has rotation capabilities: it can be rotated towards any room of the outside circle one might be residing in. The beds in the bedroom can be lowered into the ground and one can adjust their height at any time. The floor looks like a century-old parquet floor but it consists of a special Non-Skid material with a name Sören can never remember. The sensory lighting replaces light switches throughout the entire house and the computer technology is nowhere to be seen- everything has been integrated into the interior and it is easily operated via voice control.

Sören is finishing early today. He can afford to do so because his coworkers like him. They know they can rely on him and his great organizing skills in times of stress. As an urban planner he can also work from home but he is used driving to work, having done so his whole life. He enjoys spending some time apart from Lette. That way he can look forward to her even more when he returns in the evening.

The offices for urban planning are located at the outskirts of the city of Stockholm. Now

The Techie

As a Financial Web Consultant, Hakan Turhan just concluded a project in an Indian financial office. Now he wants to travel to his hometown Istanbul to have an eye problem fixed. It has been bothering him for two weeks now. Nothing big really but he is a perfectionist and any corrections must be done right away. He doesn't have to wait at all at the eye clinic. A woman wearing a white coat takes him to a vacant changing room. In a somewhat demanding voice he orders a coffee and selects the music video that the Magnet Correction Eye Glasses will project onto his eyes. Then he gets comfortable in the hovering chair. While he is watching the video on his eyeglasses the magnets slowly correct his light astigmatism. After 3 minutes Hakan finishes his Turkish coffee and happily climbs out of his Hovering Chair. He thinks it's rather a shame that the procedure was over so fast because that chair was really comfortable. Hakan's skin on the back of his hand contains a chip. It is scanned by the International Health Organization and not before winking at the nice clinic worker, he says goodbye. She throws him a surprised look because she can't stand those slightly arrogant guys like Hakan.

Hakan switches on his iCom Terra again. It had to be switched off at the clinic. The iCom is the latest gadget and not yet available in Europe. The techie Hakan obtained one in India created for the Asian Market. It has all the features except for the secure connection. The secure connection is not yet released for Europe but Hakan doesn't mind that. His apartment complex offers Terminals from where he can take care of all citizen duties virtually and just as easily. The iCom Terra is not the only technological beauty that Hakan owns. As soon as something new hits the market, the technology addict just has to have it whatever the cost. He does well as a Financial Web Consultant. He is 22 years old and started this job right after he graduated from college at which point he received a really good offer from the financial arena. His ambition and eagerness but also his sharp mind has propelled him to the top of the ranks in the international Financial World. Hakan is wondering whether he should go the Education for Life Center now or do so tomorrow morning as planned. The International Bank Supervisory Committee has issued yet another new banking system and he has to keep up with the newest trends. His field is very fast-paced and only those that master the newest system techniques can become experts and demand a lot of money. Hakan checks in with his iCom to see if the reception of the Education-for-Life Center is still open at this time. It is and so he arranges an appointment with a computer-science professor to apply for his course.

micalito_Mo's

“The MoROLL”

Marketing Plan

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1. Business Overview

The business plan at hand documents the prototype stage of a furniture design for large rooms and public spaces. It is designed to sit one, two, or many persons, depending on its design as “MoROLL” or “MoSPIRAL”. Its main target is a waiting area in an airport with high ceilings.

The furniture’s design is to give its user a personal space to relax in, and to be in a semi-private space where he can communicate with his neighbor, but he does not have to. It also functions as a room divider, and gives multiple possibilities to install lighting and entertainment equipment. Due to its size and unique appearance, it offers itself for showrooms, VIP-lounges, hotels and executive suites and offices. Its buyers want to serve their customers by providing luxury with style, and make a statement of exclusivity.

The design could be sold to a producer/ manufacturer, or be self-produced and marketed. In 2-5 years, the “MoROLL” will be a must have for exclusive interior designs, and a landmark in several airports and public spaces around the world.

The design makes the designer. Once the designer has a name, it becomes a trademark for quality and good design, which in turn reflects on the design, and brands it. The main focus will be on the quality of the design, and on exposure of the design, i.e. exhibitions, press, publicity.

2. Market Overview

The target market for the “MoROLL” is high-end furniture design, exclusive interior design, and public spaces, where modern architecture needs and meets exclusive design.

Examples of companies, which produce such furniture in the European market, are Vitra, Artek, Aero, and Skanno. Other possibilities are Magaru in Japan, who are competent in producing furniture from bamboo, which is one possible alternative to wood, or glass fiber.

The aim of this marketing strategy is to develop a plan of action to get the design exposed and published. It is not only the design that needs to be promoted, but the designer as well. Ultimately, a brand should be developed and marketed.

a. Customer Information

The potential customer has no objection to spend money on good design. Knowing that an exclusive look has its price, the customer is ready to spend money on the design, even the name of the designer. Exclusivity is part of the value.

At this point it is not decided on whether the “MoROLL” is sold as a design to a producer, and thus using his clientele and distribution, or whether the “MoROLL” is produced in small quantities (10-50 units/year), and marketed directly. In the first case, my customers would be furniture producers, in the other case it would be architects, interior designers, and the end-user.

b. Market Information

Design, design classics, high-end design furniture and new design have a stable market section. The industry, especially manufacturers, is on the constant lookout for new design and designers. As it is with arts, or high fashion, there has to be always exclusivity and “buzz” about something new and exciting. That “buzz” will create as much the market value, as the actual prizing

will. The publicity is the main focus.

c. Industry Information

The local industry in Joensuu is wood-based, but has specialists in other fields as well, e.g. fiber glass due to its boat industry. The furniture industry, and especially design furniture, has a long-standing tradition in Finland, and a high respect internationally.

Another aspect could be to have the furniture produced in Germany, if it is possible to create interest from producers there. Also, it could be produced in Japan, if bamboo would be considered as building material. The marketing aspect would change; a new sustainable raw material could be introduced into the European and Nordic market.

d. Product/Service Information

The actual selling point of the “MoROLL” is the experience of sitting in it, and its unique shape and design. Currently, people’s reaction is excitement and wonder. Its placement in the TOP 20 of the “International Design Award 2009” is a good indicator for the uniqueness of the design, and its intended purpose.

3. Objectives

The product is still in its prototype phase. The material, which it is built from, glass fiber, lent itself for its stability and availability. The task at hand is to get the design produced as a one-off, and to exhibit it at the “Habitare 2010” in September 2010 in Helsinki, Finland.

Its appearance at this exhibition is already a big step into the publicity of that design. It also creates the opportunity for possible producers to actually experience the “MoROLL”. After that, further marketing and production strategies can be developed.

4. Strategy

The short-term strategy for the “MoROLL” is to promote the design at the “Habitare 2010” exhibition, and to find potential producers there. By that time, final decisions on the products material and production techniques can be made. Until then, the main focus will be publicity and promotion.

a. Product

The “MoROLL” features a unique sitting experience, combined with a highly recognizable and one-of-a-kind design.

The difference to other high-end design furniture is its innovative design, its quality, its lightness, and the impression it makes visually and physically.

It can be manufactured and marketed as a product family. Its standard forms are one- and two-seaters, which come as a rocking chair, as a lounge chair, or as a foldout. As a two-seater, most of these functions can be combined. There are also couch-tables available in the same design style. Ultimately, the “MoROLL” will be available in different colors and finishes. It will be made out of fiberglass, bamboo, metal, or wood. The customer can choose the color.

b. Pricing

The costs of producing one double-seater lounge chair of the “MoROLL” can only be estimated at this time. The material used for the production of a prototype made of fiber glass so far is around € 500,-. The manufacture time is estimated at about 200 hours at this point. Both values are not representative of future requirements. The production time will decrease considerably, while the required material will increase, depending on the final design and raw materials. The final retail price is to be estimated at above € 2,500,- at this point.

c. Distribution

The “MoROLL” will be distributed through channels of the producer. If self-produced and –marketed, the emphasis will be on custom-made finishes. The distribution channels will be the Internet, trade shows, and through placement in strategic areas, like airports, hotels, casinos, etc.

d. Promotion

Internet:

Own website, one for the product itself, another for the designer. Both need to be promoted simultaneously.

Public relations:

Create a “buzz” through exhibitions and press. Find good PR-agent.

Advertising:

Being present on international trade-shows. Good print material, brochures, badges, gadgets, gimmicks, key-chains, etc. Advertisement in exclusive magazines.

Promotion:

Through publicity stunts. Creating public awareness.

Branding:

Brand the designer’s name. Brand the design’s name.

e. Operational Plan

SWAT-Analysis:

STRENGTHS:

Uniqueness, Quality, Experience

WEAKNESSES:

High price, Small Market

OPPORTUNITIES:

Exclusiveness has its price. Direct target the money sector of the market.

THREATS:

Fashion can be over soon. Small chances of becoming design classic.

f. Sales promotion

At this stage, I have to still promote me as a designer to promote my design. My focus will be on my personal strengths, which are communication, passion, understanding, intuition, verbally and visually.

Thus, my sales promotion will focus on public relations.

g. Advertising

The message is of exclusivity, comfort, care, being protected and safe, being cared for. An efficient way of advertising is product placement in movies or TV spots of other advertisers. Another effective way is the placement as a prop in a photo shoot for fashion, jewelry, or perfume.

h. Public relations

My focus in public relations has to be on both the designer and the product. Both help each other to become a name. For PR to be effective, it has to focus on the level where it can be useful. In this case, it has to be on a national or international level, for otherwise the clientele cannot be reached.

i. Direct Marketing

I consider to contact architects and interior designers directly. Also the direct contact to museums and exhibitions is a way to market the design.

j. Online Marketing

My online marketing would concentrate on representing the designer and his design. Direct marketing will only be of concern in case of self-production.

5. Budgets

MATERIAL		€ 500, - +	Glass fiber mats, resin, gel coat, Divinycil
WORKING HOURS	200 hrs	---	
PR MATERIALS		€ 200, -	Photographs, print flyers
TRANSPORT TO HELSINKI		€ 200, -	
HOTELS FOR STAY IN HELSINKI		?	

The values in this Budget Plan are merely to indicate the current costs to produce the prototype and to promote the design at “Habitare 2010”

6. Action Plan

Production of prototype						
Production of PR Material						
Contact Sponsors and Producers						

7. Supporting Documentation

[“International Design Award 2009”](#) (see page 36),

<http://micalitomo.blogspot.com/> (for information on the designer and the design)

“INTERNATIONAL DESIGN, made in Joensuu”

Exclusive and innovative furniture design made in Joensuu will be exhibited at “**HABITARE 2010**” in Helsinki, 1.9.-5.9.2010 (for more info, please see <http://web.finnexpo.fi/sites1/habitare/Sivut/default.aspx>)

Error! Contact not defined. placed himself in the TOP 20 in the “**International Design Award 2009**”, with over 1,600 participants worldwide (for more info, please see http://www.hettich.com/blaetterkataloge/IDA-Doku_2009/en_DE/blaetterkatalog/ page 36)

“**The MoROLL**” is a sitting/lounge furniture for 2 people, designed for public spaces, like airports, or bigger rooms, like VIP-lounges or executive offices. It provides a secluded and intimate space in an otherwise open and public environment (for more info, please see <http://micalitomo.blogspot.com/p/blog-page.html>)

Michael Weinmann is a studied Industrial Design at **PKAMK** in Joensuu since 2007. He is currently working on his thesis (for more info, please see <http://micalitomo.blogspot.com/>)

Paavo Honkanen has helped to build the prototype. He specializes in glass-fiber technique, building boats for AMT, among others. He is the man for the “tricky stuff”. Without his dedication and expertise, this project would not have been possible.

As both did not share the same language, they had to communicate via their compassion for their work, sharing the same ethics and values in their crafts. They learned from each other by doing.

After the presentation at “**HABITARE 2010**”, Michael Weinmann will look for a producer and distribution for “**The MoROLL**”, and will continue to develop the design further. Optional materials besides glass-fiber are wood, bamboo, and even recycled paper. As a high-end design furniture, it will always be produced in small series, and by hand.

For further information and inquiries, please **contact**:

Michael Weinmann

045-1348988
michael.weinmann@edu.pkamk.fi
micalitomo@gmail.com

7 Nykänen valittaa tuomiostaan
Matti Nykänen tuomittiin yli vuoden ehdottomaan vankeusrangaistukseen törkeästä pahoinpitelystä.

13 Matkustajakone syöksyi maahan Kiinassa

Keskiviikkona elokuun 25. päivänä 2010 | Nro 232 | Irtonumero 2 e (kestotilattuna kotiin 0,64 e) www.karjalainen.fi

KARJALAINEN

Kasvua myyntiin sanomalehti-ilmoituksella
Soita puh. (013) 2551 / ilmoituksosasto
KARJALAINEN

SIKAINFLUENSsarokotukset on keskeytetty Suomessa toistaiseksi. SIVU 7



KOULUKULJETUKSET
Tahmea alku

- Liperissä koulukyytejä järjestettiin uudelleen, kun Ylämyllyn koulun Honkalammen yksikön oppilaat siirtyivät Jyrin yksikköön.
- Uudet kuljetusjärjestelyt kangertelevat vielä, ja pienetkin lapset ovat joutuneet odottelamaan myöhästyneitä vuoroja pitkiä aikoja.
- Joensuussa, Kontiolahdella ja Liperissä on yhteensä runsaat 3 000 kyytioppilasta. SIVU 3

TERVEYDENHUOLTO
Joensuun terveysmenot keskitasoa

Joensuun kaupungin asukkaiden sosiaali- ja terveyspalvelut ovat lähes eurollen samanhintaiset kuin Suomen muissa samankokoisissa kaupungeissa.
Moni kakku päältä kaunis, niin tämäkin. Kun kokonaismenot pienenevät ohuempina siivuhin, paljastuu yksittäisten palveluiden takaa aikamoisia yllätyksiä. SIVU 6

KARJALAINEN TÄNÄÄN

Afrikkalaisten bisnes kasvaa
Afrikkalaiset kauppiat harjoittavat Kiinassa pienimuotoista, mutta nopeasti kasvunutta osto-myynti-bisnestä. Kinasta Afriikkaan käyty kauppaa kasvoi vuosien 2005 ja 2007 välillä lähes 300 prosenttia. Tämä näkyy eteläisen Guanyngin provinssin Szydzin jonne hän kaipasi näyttävää ja mukavaa tuotia. SIVU 12

Makaraisen kritiikki ei miellytä
– Urheilijat ovat saaneet harjoitella niin kuin heidän omat valmentajansa haluavat, sanoo Ampumahiihdonliiton kilpailutoimintavaliokunnan puheenjohtaja Juha Pajussari. SIVU 21

Julkisten tilojen uutuus Habitarren
Pohjois-Karjalan ammattikorkeakoulussa opiskeleva Michael Weinmann on saanut valmiiksi The Mo Roll -tuolinsa, joka matkaa ensi viikolla Habitarren 2010 messuille Helsinkiin. Weinmannin idea syntyi lentokentällä.

70 vuotta bunkkereita
Joensuun Marjalan bunkkereiden rakennusoiden aloittamisesta nyt tästä kalmuksesta tässä 70 vuotta. Kulturi kesä oli kuitenkin bunkkerimuseon kävijämäärällä mitattuna väsynä. SIVU 28

Lomautukset loppumassa
Lomautukset ovat parantuneiden viestintäkymien vuoksi loppumassa Pohjois-Karjalassa. Henkilönnä loppumassa henkilökohtaisesti lomautettuja työttömiä oli 505 henkilöä, mikä on alle puolet vuodentakaisesta. Maakunnassa oli 12 032 työttömää työnhakijaa, eli 1181 henkilöä vähemmän kuin vuotta aikaisemmin. Työttömyysprosentti oli sillä Suomen korkein, 16,8. Seuravana listalla ovat Kainuu ja Lap- pi. SIVU 10

Juna näyttää kulkevan SDP:ssä nyt siihen suuntaan, että Eero Heinäluoma nousee puoleen presidenttiehdokkaaksi.
PÄÄKIRJOITUS SIVU 2

Vuokrasopimus pitää kiinni
Opiskelijan kannattaa tehdä vuokrasopimus, sillä maastakalusta sopimuksesta ei pääse hahmottamaan ennen helposti. Tämä sykkyrä vuokrasopimukseen tuottaa solmivansa vielä moni opiskelija, sillä asuntovälittäjä on erityisen hankala. – Pyrimme aina tarjoamaan solmuseuron avulla paikalliskunnilla Joensuuhun tuleville, mutta tänä vuonna joensuun on useita kymmeniä opiskelijoita, kertoo Minna Häyrynen Joensuun Eliassa. SIVU 5

HYÖNTEISET
Hyönteistorjunta Jukka-Pekka Issakaisen puhelin on soinnut loppukesällä tiuhaan, sillä kuluva kesä on ollut ampaissille erityisen suotuista. Ampaissa on nyt jopa yhdeksänkertainen määrä viimp- kesään verrattuna. Ja suurista yhdyskunnista johtuen myös pesät ovat normaalia suurempia. Pesien hävitykseen kannattaa aina kutsua ammattilainen, sillä allergiselle yksikin pisto voi olla kohtalokas. SIVU 4

HANSKOJEN OSTAJALLE 59,99
NAHKATAKKI
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ALIRINKOKENNO-VALO 5 kpl 10€
ULKOPALLO, KRYSSANTEMI, UPEA TAITTIKKO 499€
PUHONLEIKKURI 249€
ASTIAN- PESUAINE 1 l 3,09€
MIKROKUTU- LINA 1,50€
LEHTIKOMPOSTORI 450 L 299€
SCART JOHTO 1,5 M 1€

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AVOINNA: MA-PE 9-19, LA 9-16

PALJON UUTUUKSIA!

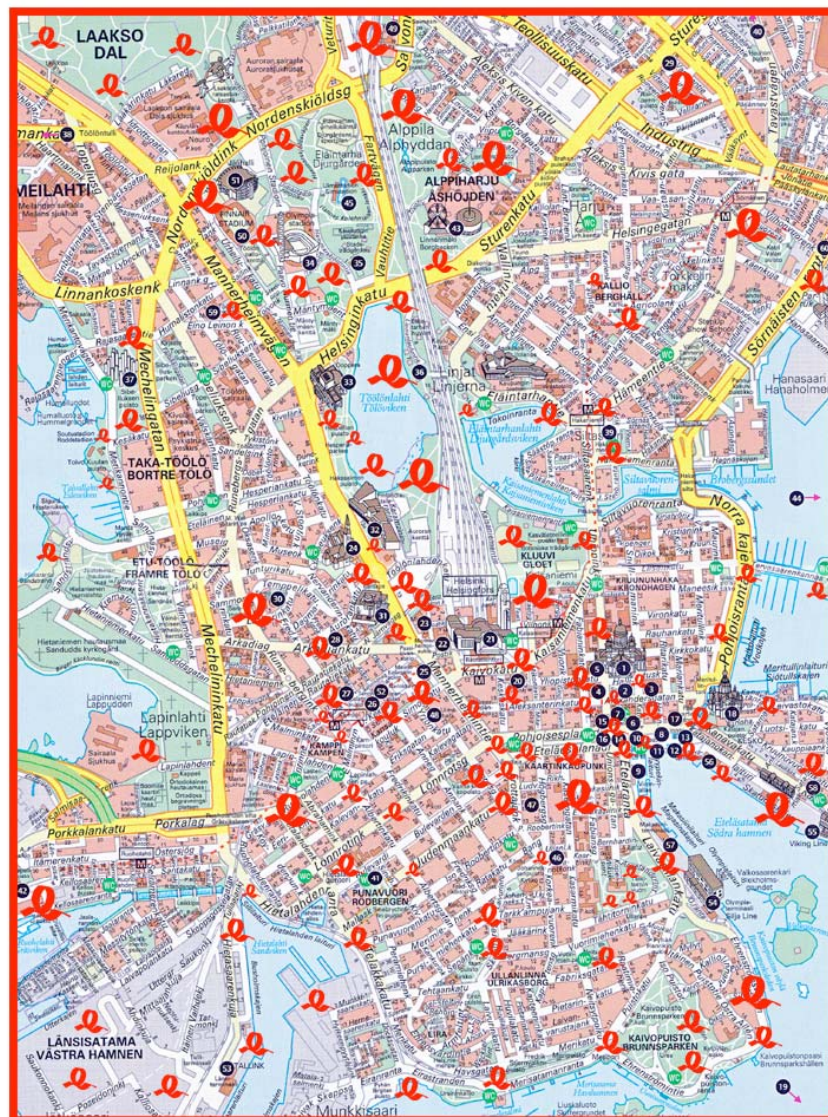
SHAMPOO tai LYHTY 3 kpl 70% 10€	AUTOTALLI 6x5x2,8 m 40% 179€	PUHONMÄTTÖ 60x35 cm 40% 6€
JÄTTHÖIRAS 200 ml 79€	AIKAVERKKO 1,2x1,0 m 19€	SOLARVALO 4 kpl 10€
ULKOVALO- PUIKKA 1 kpl 45€	PEILI KULTAREUNUS 70% 15€	

0400 250 480, 0400 250 580, 0400 250 680
WIHONEN
KOKONAAN UUSI SISUSTUSOSASTO
L 9-19, I 9-16, E 12-16



HappyBirthdayHelsinki®

Happy Birthday Helsinki



200 RED MoROLL^s

tie, like ribbons, the World Capital of Design
to the Capital of Finland.

200 years of heritage, design, culture and history.
RED MoROLLs in public spaces around the city,

attracting and guiding visitors and locals
to historical landmarks and places of design,

integrating design in daily life,
and promoting the World Design Capital 2012.

Tied to **charity**, the RED MoROLL
becomes the symbol for world design in Helsinki.

Happy Birthday Helsinki

SIZE matters!
BIG EVENTS need BIG DESIGN.



Sustainable lasting impressive

attractive responsible visible



communicative connective caring

QUALITY CHARITY UNITY



COMMUNITY.





Happy Birthday Helsinki[®]

BIG EVENTS need BIG IDEAS - and BIG CAUSES!

The event **WORLD DESIGN CAPITAL 2012** (WDC) in Helsinki is big in many ways. It has the whole world at its scope, happens in one of the world's hippest cities, and carries the torch for, and responsibility of "Scandinavian Design". For a whole year, the world will look at Helsinki, and will come to experience the city, its design, and its people.

The yearlong project **"HappyBirthdayHelsinki"**TM wants to match the occasion, and take it even further. To address human needs with design is one of design's primary functions, and the design of "**The MoROLL**" is an obvious product of human-centered design. But it wants to be more than a product or a brand. Design needs to be an agent for good. The use of design beyond design, as a messenger for other values and needs, such as communication and connection, but also to communicate the bigger ideas behind it, life, design in life, designing life, meet in the end in one common topic, which concerns us all: LIVING TOGETHER!

The project **"HappyBirthdayHelsinki"**TM intends to show that design lives in Helsinki, that it is everywhere, in everyday life, open, accessible, and obvious for everybody to enjoy and to experience. **200 "RED MoROLL"**s are installed in public places all over the city, like candles on a birthday cake. Every "**RED MoROLL**" stands as a symbol for one year of the **200 years** of Helsinki being Capital of Finland. **"HappyBirthdayHelsinki"**TM and the WDC celebrate and honor Finland's history and independence.

200 "RED MoROLL"s are a signal, a reminder in every day life of the humanitarian causes we tend to forget, but need and want to address: AIDS, cancer, World Hunger, poverty. Again, Finland has a long history of getting involved, taking a stand, and supporting the ones in need.

"HappyBirthdayHelsinki"TM will donate 50% of its proceeds to charity.

"HappyBirthdayHelsinki"[™] will partner up with strong agents in the field of human awareness: RED, Peace One Day, and One.

"HappyBirthdayHelsinki"[™] wants to acknowledge the openness of Helsinki, make the WDC and design visible everywhere, and raise funds and awareness for people in need around the world. Design cannot be blind. Design sees, and can make others see. Design is only the messenger. The message is that we are not alone. We are all in this together. We care.

For all further information, please refer to the attachments, or contact me:

Michael Weinmann

micalitoMo

design

+358-45-134-8988

micalitomo.

[blogspot.](http://micalitomo.blogspot.)

[com](http://micalitomo.com)

Thank you!

Estimate of COSTS for Project <u>“HappyBirthdayHelsinki”</u>	- In Euro €- (w/o VAT)
<u>Costs for Production Prototype of “The MoROLL”</u> (handmade, fiberglass)	
- Costs for Material (for prototype)	800. -
- Labor/ time for development, research, time/ working hours of designers and specialists (for prototype), donated, March-September 2010	(500 hours)
- Labor costs, specialist	1,200. -
<u>COSTS TOTAL of Production of Prototype of “The MoROLL”</u>	<u>2,000. –</u>
<u>Funding for Production of Prototype of “The MoROLL”</u>	
Income through partnering with companies	800. -
Income from sponsorship, endorsements, material	1,200. -
Donation of labor and time for development, research, time/ working hours of designers and specialists	(500 hours)
<u>INCOME TOTAL for production of Prototype of “The MoROLL”</u>	<u>2,000. -</u>
COSTS TOTAL Production Prototype	2,000. -
INCOME TOTAL Production Prototype	- 2,000. -

<u>PRODUCTION TOTAL Prototype "The MoROLL"</u>	<u>0.-</u>
--	------------

The prototype of **"The MoROLL"**, its research and development, the design, the ©Copyright, and the ®Trademark™ for **"The MoROLL"**, and the idea for **"HappyBirthdayHelsinki"** and its development are assets which will not be reflected in the Estimate of COSTS for Project **"HappyBirthdayHelsinki"**. They are my investment in the WDC 2012 in Helsinki. ©Copyright and ®Trademark™ for both **"The MoROLL"**, **"The RED MoROLL"**, and for the design concept and project **"HappyBirthdayHelsinki"** are registered under Michael Weinmann.

Estimate of COSTS for Project <u>“HappyBirthdayHelsinki”</u>	- In Euro €- (w/o VAT)
A) <u>Costs for Production of 200 units of “The RED MoROLL”</u> (factory-made, fiberglass or fiber composite)	
- Production costs for 1 unit of “The RED MoROLL”	500. -
- Production costs for 200 units of “The RED MoROLL”	100,000. -
<ul style="list-style-type: none"> ▪ PRODUCTION TOTAL for 200 units of “The RED MoROLL” 	100,000. -
- Costs for transport and/ or storage of 1 unit of “The RED MoROLL” (if production is located close to installation)	50. -
- Costs for transport and/ or storage of 200 units of “The RED MoROLL”	10,000. -
<ul style="list-style-type: none"> • TRANSPORT & STORAGE TOTAL for 200 units 	10,000. -
- Installation costs for 1 unit of “The RED MoROLL” (if the location requires a podium made of plywood, min. 100 x 2000 x 2000, max. 300 x 3000 x 3000)	50. -
- Costs for installation of 200 units of “The RED MoROLL” (incl. price for material for podiums)	10,000. -
<ul style="list-style-type: none"> • INSTALLATION TOTAL 	10,000. -

PRODUCTION TOTAL	100,000. -
TRANSPORT & STORAGE TOTAL	10,000. -
INSTALLATION TOTAL	10,000. -
A) <u>PRODUCTION & INSTALLATION TOTAL</u>	<u>120,000. -</u>

Estimate of COSTS for Project <u>“HappyBirthdayHelsinki”</u>	- In Euro €- (w/o VAT)
Balance from Page 2:	
A) <u>PRODUCTION AND INSTALLATION TOTAL</u>	<u>120,000. -</u>
B) <u>Costs Personnel and Expenses</u> (June 2011 - December 2012)	
- Labor costs for 1 full-time employee, net € 2,500.-/mo, for 19 months, executive producer	47,500. -
- Labor costs for 1 part-time employee, net 12.-/hr, 20 hrs/wk, for 40 weeks, web-service, organization	8,000. -
- Labor costs/ fees for PR agent	7,000. -
- Labor costs/ fees for design manager, exhibition and auction coordinator	7,000. -
- Expenses travel, between production and installation, for promotion, to trade fairs, nationwide, international	6,000. -
- Expenses inventory, computer, printer, web-site, office inventory and supplies, paper, phone, camera photo and video for documentation	16,000. -
- Expenses and upkeep web-site, phone	3,000. -
- Costs and expenses for promotion, promotional items, print	5,000. -
- Rent commercial space, production office for “HappyBirthdayHelsinki”, later gallery for exhibition of design development of “The MoROLL”, 35-50 sqm, € 12.-/sqm and month, for 19 months	11,400. -

B) <u>PERSONNEL & EXPENSES TOTAL</u>	<u>110,900. -</u>
A) PRODUCTION & INSTALLATION TOTAL	120,000. -
B) PERSONNEL & EXPENSES TOTAL	110,900. -
C) <u>ESTIMATED TOTAL COSTS of Project</u> <u>“HappyBirthdayHelsinki”</u>	<u>230,900. -</u>

The **ESTIMATED TOTAL COSTS of Project “HappyBirthdayHelsinki”** do not reflect any

- **Grants** applied for (a pending grant application over € 66,095. - for one year, incl. a personal grant covering the labor costs for 1 full-time employee, for additional staff, and expenses for travel, material, and office rent),
- **Sponsorships, endorsements**, or involvements of **Corporate Partners**,
- **Interests, endorsements** or **support** of the **producers** of “The MoROLL”.

These, and additional financial support which can, and will be, applied for (TULI Project, Tekes, Josek, grants from SKR and TKT) will **POSITIVELY** influence the estimated costs. Please see attachments **“INCOME Estimate”** and **“FUNDING Shares”!**

All expenses, and especially production costs, are estimated towards the high end, to **ensure viability of the project “HappyBirthdayHelsinki”**.

The **PRODUCTION COSTS for the Prototype** only reflect actual costs. They do not show **learning benefits** of trial and error, learning by doing, or other R&D (Research & Development) investments, which were a necessary investment to learn about this design, its possibilities, and to make it ready for production.

The **Prototype** was developed, and built by hand by Michael Weinmann, in close cooperation with specialists and professionals in the field. It was designed to be fully functioning, and was exclusively presented at **“HABITARE 2010”** in Helsinki. There, it was tested by thousands of visitors. Today, the same prototype is in daily use by hundreds of students in the entrance hall of PKAMK in Joensuu, Finland. It is extremely robust, sustainable, and needed no maintenance since its production. It is lightweight, therefore easy to transport. No changes or improvements had to be made since. **The design is ready for production.**

Estimate of INCOME from Project <u>“HappyBirthdayHelsinki”</u>	- In Euro €- (w/o VAT)
A) <u>Net Income from sale of “The RED MoROLL”</u>	
- Price for 1 unit of “The RED MoROLL”, limited edition, signed by designer, numbered (w/o transport)	3,500. -
- Estimated sale of 100 units of “The RED MoROLL”, signed by designer	350,000. -
- Price for 1 unit of “The RED MoROLL”, limited edition, signed by designer and celebrity, numbered (w/o transport)	5,000. -
- Estimated sale of 50 units of “The RED MoROLL”, signed by designer and celebrity	250,000. -
INCOME TOTAL SALE “The RED MoROLL”, signed by designer	350,000. -
INCOME TOTAL SALE “The RED MoROLL”, signed by designer and celebrity	250,000. -
A) <u>NET SALES TOTAL for “The RED MoROLL”</u>	<u>600,000. –</u>
B) <u>Net Income from Auction of “The RED MoROLL”</u>	
- Starting price for bids in auctions for humanitarian causes, for 1 unit of “The RED MoROLL”, signed by designer	4,500. -

- Estimated income from auctions of 20 units of "The RED MoROLL", signed by designer	90,000. -
- Starting price for bids in auctions for humanitarian causes, for 1 unit of "The RED MoROLL", signed by designer and celebrity	5,500. -
- Estimated income from auctions of 30 units of "The RED MoROLL", signed by designer and celebrity	165,000. -
INCOME TOTAL AUCTION "The RED MoROLL", signed by designer	90,000. -
INCOME TOTAL AUCTION "The RED MoROLL", signed by designer and celebrity	165,000. -
B) <u>AUCTIONS TOTAL for "The RED MoROLL"</u>	<u>255,000. -</u>

Estimate of INCOME from Project <u>“HappyBirthdayHelsinki”</u>	- In Euro €- (w/o VAT)
A) INCOME SALES TOTAL	600,000. -
B) INCOME AUCTIONS TOTAL	255,000. -
C) <u>ESTIMATED TOTAL INCOME from Project</u> <u>“HappyBirthdayHelsinki” *</u>	<u>855,000. -</u>
* This does not include any additional funds raised during events for charity or humanitarian causes.	
ESTIMATED TOTAL INCOME	855,000. -
50% of ESTIMATED TOTAL INCOME, which goes to charity, and the humanitarian causes the project “HappyBirthdayHelsinki” endorses	- 427,500. -
ESTIMATED TOTAL COSTS	- 259,900. -
D) <u>ESTIMATED NET INCOME from Project</u> <u>“HappyBirthdayHelsinki”</u>	<u>167,600. -</u>

The **ESTIMATED NET INCOME from Project “HappyBirthdayHelsinki”** does not reflect options and possibilities of local sponsorship, product placement, or endorsement of corporate companies. Endorsements might alter the design, but they can be considered. The income from advertisement, promotion, endorsement, and product placement (TV commercials, photo shoots, TV shows, movies, etc.) can easily be estimated at € 5,000. – per one “MoROLL”, per one use, or per one year local sponsorship endorsements. A low guess at 50 “The MoROLL”s, which would be used for promotion in that way, adds an

additional € 250,000. – to the net income.

The actual **BENEFITS of the project “HappyBirthdayHelsinki”** are long-term:

- An established design company in the region of North Karelia,
- An established production company for the production of “The MoROLL” in Finland, or additional revenue for an already existing Finnish company,
- Employment, temporary for 19 months until the end of the WDC, and permanent after the WDC, through the production company of “The MoROLL”, and through the newly created design company,
- Increased business through sales of “The MoROLL”, to private and corporate customers, and communities worldwide,
- Worldwide promotion of Finnish Design, and design education, as both the designer Michael Weinmann, and his design “The MoROLL” are a product of the Finnish Design education, and will be representatives of Finnish Design worldwide,
- Focus on the region of North Karelia as a place of groundbreaking design, and innovative ideas and technologies. The project “HappyBirthdayHelsinki” is only the start of the development of the product “The MoROLL”, which will strive to showcase new and innovative materials and technologies, such as fiber composites and its introduction to the public, and its use worldwide.

Estimated FUNDING Shares for Project <u>“HappyBirthdayHelsinki”</u>	In Euro € (w/o VAT)
A) <u>Costs for Production minus Funding Shares</u>	
- Production costs for 1 unit of “The RED MoROLL”	500. -
- Production costs for 200 units of “The RED MoROLL”	100,000. -
- Funding share producer/ partner/ supplier	- 50,000. -
▪ PRODUCTION TOTAL minus FUNDING	50,000. -
- Costs for transport and/ or storage of 1 unit of “The RED MoROLL” (if production is located close to installation)	50. -
- Costs for transport and/ or storage of 200 units of “The RED MoROLL”	10,000. -
- Funding share sponsor Transport Company	- 5,000. -
• TRANSPORT & STORAGE minus FUNDING	5,000. -
- Installation costs for 1 unit of “The RED MoROLL” (if the location requires a podium made of plywood, min. 100 x 2000 x 2000, max. 300 x 3000 x 3000)	50. -
- Costs for installation of 200 units of “The RED MoROLL” (incl. price for material for podiums)	10,000. -
- Funding share City of Helsinki	- 10,000. -
• INSTALLATION TOTAL minus FUNDING	0. -

PRODUCTION & INSTALLATION TOTAL	120,000. -
FUNDING PARTNERS, PRODUCERS, SPONSORS	- 65,000. -
A) <u>PRODUCTION & INSTALLATION TOTAL minus FUNDING</u>	<u>55,000. -</u>
A) <u>MAXIMUM Funding PARTNERS, Production and Transport & Installation</u>	<u>65,000. -</u>
A) <u>MINIMUM Funding WDC Production & Installation</u>	<u>55,000. -</u>

Estimated FUNDING Shares for Project <u>“HappyBirthdayHelsinki”</u>	In Euro € (w/o VAT)
A) MAXIMUM Funding PARTNERS, Production, Transport & Installation (Balance form page 1)	65,000. -
A) MINIMUM Funding WDC, Production & Installation (Balance from page 1)	55,000. -
B) <u>Costs Personnel and Expenses minus Funding Shares</u> (June 2011 – December 2012)	
- Labor costs for 1 full-time employee, net € 2,500.-/mo, for 19 months, executive producer	47,500. -
- Funding share Grant SKR, labor costs June 2011 – June 2012, € 1,750,-/mo., for 12 months, pending	- 21,000. -
- Funding share Grants SKR and TKT, remaining labor costs full-time, January - December 2012, application period October - November 2011	- 26,500. -
- Labor costs for 1 part-time employee, net 12.-/hr, 20 hrs/wk, for 40 weeks, web-service, organization	8,000. -
- Labor costs/ fees for PR agent	7,000. -
- Labor costs/ fees for design manager, exhibition and auction coordinator	7,000. -
- Funding share Grant SKR, additional staff, purchased external services, for 12 months, pending	- 13,890. -
- Expenses travel, national/ international, between production and installation, for promotion, to trade fairs	6,000. -
- Funding share Grant SKR, travel, for 12 months, pending	- 3,790. -

- Expenses inventory, computer, printer, web-site, office inventory and supplies, paper, phone, camera photo and video for documentation	16,000. -
- Expenses and upkeep web-site, phone	3,000. -
- Expenses for promotion, promotional items, print	5,000. -
- Funding share Grant SKR, material and equipment costs, for 12 months, pending	- 15,160. -
- Rent commercial space, production office for project, later gallery for exhibition of design development of "The MoROLL", 35-50 sqm, € 12.-/sqm/month, for 19 months	11,400. -
- Funding share Grant SKR, other expenses, for 12 months, pending	- 7,200. -

Estimated FUNDING Shares for Project <u>“HappyBirthdayHelsinki”</u>	In Euro € (w/o VAT)
PERSONNEL & EXPENSES TOTAL	110,900. -
FUNDING GRANTS, Personnel & Expenses	- 87,540. -
B) <u>PERSONNEL & EXPENSES TOTAL minus FUNDING</u>	<u>23,360. -</u>
B) <u>MAXIMUM Funding GRANTS, Personnel & Expenses</u>	<u>87,540. -</u>
B) <u>MINIMUM Funding WDC, Personnel & Expenses</u>	<u>23,360. -</u>
A) MAXIMUM Funding PARTNERS, Production, Transport & Installation (Balance form page 1)	65,000. -
B) MAXIMUM Funding GRANTS, Personnel & Expenses	87,540. -
C) <u>MAXIMUM Funding PARTNERS & GRANTS</u>	<u>152,540. -</u>

<u>TOTAL</u>	
A) MINIMUM Funding WDC, Production & Installation (Balance from page 1)	55,000. -
B) MINIMUM Funding WDC, Personnel & Expenses	23,360. -
C) <u>MINIMUM Funding WDC TOTAL</u>	<u>78,360. -</u>
D) <u>MAXIMUM Funding WDC TOTAL</u>	<u>230,900. -</u>

The **Estimated FUNDING Shares** do not reflect grants given, but only the grants applied for, or possible funding through grants. There is no guarantee of receiving a grant. Yet, I am confident that the project “**HappyBirthdayHelsinki**” provides good and reasonable grounds for grants to be given. It has a wide and significant cultural, educational, and economical scope. The project “**HappyBirthdayHelsinki**” aims to involve the region of North Karelia in the international commitment of Helsinki as Capital of Finland to host the WDC, thus addressing a worldwide audience, redirecting attention and economy back to the region.

“**The MoROLL**” has already proven to be sustainable, and will continue to do so, both in its design development, and in its economic development. Grants, funding and investment will prove themselves justified as a commitment, and, directly or indirectly will likely to be returned, even many times over.

Besides supporting and promoting the event of WDC, and the city and

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HI2303 Professional Information

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On Intellectual Property and Design Rights

This essay is based on research I have done to copyright my own design. It is primarily based on information from the Internet. As the information is fairly recent, and is continuously updated, it is advised to check all sources and information for updates before using or relying on any information contained in this essay.

The European Copyright Act, which goes back to the Berne Convention for the Protection of Literary and Artistic Works from 1886, was last amended in 1979. Since then, 164 countries (all member states of the European Union, and additional neighboring countries) have become party to that Act. The last country to join was Yemen in 2008¹. The copyright law of the European Union tries to harmonize the protection of copyrights granted under varying laws in different countries².

Copyright³ gives the author or creator of an original work exclusive rights for a limited time. It is "the right to copy", but also the right to be credited for the work, and determines who may use and benefit from it. It is a form of

¹ <http://www.wipo.int/treaties/en/ip/berne/>

² http://en.wikipedia.org/wiki/Copyright_law_of_the_European_Union

³ <http://en.wikipedia.org/wiki/Copyright>

intellectual property, and “applicable to any expressible form of an idea or information that is substantive and discrete”.

Copyright legislation is part of the wider body of law, the intellectual property (IP). “Intellectual property” refers broadly to the creations of the human mind. Intellectual property rights protect the interests of creators by giving them property rights over their creations⁴.

According to the convention establishing the World Intellectual Property Organization (WIPO) in 1967, industrial design is protected by intellectual property rights, along with scientific discoveries, inventions, and “other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields”⁵. The intellectual property is not in the copy of a work, but in the information and knowledge reflected in it. Both copyright and patent rights are limited in time, anywhere from 3 - 15 years after the creation of a work, its publication, and/ or the filing of its registration, to 50 - 70 years after the death of the author, depending on subject, law, and country. I will specify the time limitations for the rights in industrial designs and design ideas later on. The grounds for IP rights are the creator’s moral and economic rights in his creation, and the public’s rights in accessing it. Legislature wants to promote creativity, the publication and distribution of its results, and to encourage fair trade, thus contribute to economic and social development.

Intellectual property is divided into two branches, namely industrial property, which protects inventions, and copyright, which protects literary and artistic works. Industrial property includes patents to protect inventions, and industrial designs. Industrial designs are defined as “aesthetic creations determining the

⁴ World Intellectual Property Organisation, Leaflet "[Understanding Copyright and Related Rights](#)" (PDF), WIPO, pp. 6–7

⁵ http://www.wipo.int/freepublications/en/intproperty/909/wipo_pub_909.html#intro.html

appearance of industrial products". Industrial property also includes trademarks, commercial names and designations, and protection against unfair competition. Copyright relates to artistic creations, like books, music, paintings, films, and computer programs. Copyright is known as author's rights. The author has the right to make copies, license another to do so, or prevent copying.

A distinction is necessary between inventions and artistic work. Inventions are ideas, new solutions to technical problems. To protect inventions under patent law, a physical embodiment is not required. The protection is against any use of the invention without the authorization of the owner. If anybody makes the same invention independently, without copying or even being aware of the first inventor's work, he has to obtain authorization before he can exploit it. Copyright law protects only the form of expression of ideas, literary or artistic expressions, not the ideas themselves. It protects the creativity in the choice and arrangement of words, musical notes, colors, and shapes against those who copy, use or change the form in which the original work was expressed by the author.

Protection for inventions gives a monopoly right to exploit an idea, but lasts only for about 20 years, and must be disclosed publicly in an official register. An official notification specifies invention, owner, and duration. The idea behind it is that an invention should be made accessible to the public for its benefit as soon as possible. Protection of literary and artistic works under copyright prevents unauthorized use of the expressions of ideas. It lasts much longer than in the case of the protection of ideas themselves, without damage to the public interest. In most countries, the law is simply declaratory, that means that the law states that the author of an original work has the right to prevent others from copying or using his work. That way, a created work is considered protected as soon as it exists, and a public register of copyright

protected works is not necessary. The ideas in the works do not need to be original, but the form of expression must be an original creation of the author.

The Berne Convention lists, among many others, “works of drawing, painting, architecture, sculpture, engraving and lithography”, and “works of applied art; illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science” as works protected by copyright. Both categories apply to the work of a designer, and could be used to protect a design idea, a model of a design, or a prototype under the copyright law. On the other hand, it adds to the confusion on whether to protect an idea, a design idea, or a design as invention, and therefore industrial property, or as artistic work, therefore as copyright.

To clarify design rights, “a right to a design is an industrial property right, which protects the appearance of a product or part of a product. The object of protection can only be the appearance of the product; technical ideas that can be put into industrial use can, instead, obtain patent or utility model protection. The appearance of a design is the overall impression of its lines, contours, colors, shape, texture or materials”.⁶ The object of protection is always a concrete article, or a part of it (for example a hammer, a book shelf, a package, a tie, a bun, scissors, or a bottle cap, but not directions for use, or interior designs). Also, a non-separable part of a product (a part or a detail of a product that cannot be taken away from the product without breaking it) can obtain protection, for example the pattern of a cloth, the bottom end of a bottle, or the handle of a coffee cup. However, there are no requirements whatsoever as to the artistic effect.

Obtaining a design right under the Finnish national law requires that the design be registered with the National Board of Patents and Registration of

⁶ <http://www.prh.fi/en/mallioikeudet/yleista.html>

Finland (PRH). Detailed information on the application procedure is available in English⁷, as well as instructions on how to apply⁸, but unfortunately, the forms are only available in Finnish, and cannot be filed electronically⁹. Considering the relatively high prices for registration fees¹⁰, and the limited, only nationwide protection it offers, a Europe-wide protection seems more feasible in a worldwide design market. A worldwide protection is not yet possible, at least not to my knowledge. Big design markets, like China, the United States, and Japan, protect themselves with their own intellectual property laws; registration for protection would have to be filed separately in each market. But organizations like WIPO are working on harmonization and equalization of intellectual property rights protection. A trans-European protection of design rights would be possible under the Community Design Protection (CD), which was adopted for all member states of the European Union in 2001. Since 2002, Unregistered Community Design (UCD) is in effect, and the Registered Community Design (RCD) exists since 2003¹¹.

An RCD, after filing an application for registration, protects the outward appearance of a product or part of it. It is valid for five years from the filing date, and can be renewed in blocks of five years up to a maximum of 25 years. A design can be marketed for up to 12 months before filing for an RCD without destroying its novelty. The UCD protects a design from unauthorized copying for the first three years after its publication within the European Union, without filing an application. Yet, without registration, it might be more difficult to prove that the protection exists, and protection exists only against copying. But the fact that protection exists under the UCD, allows the designer to be more comfortable publishing a design. An RCD can be filed with the

⁷ <http://www.prh.fi/en/mallioikeudet/moreken.html>

⁸ <http://www.prh.fi/en/mallioikeudet/mohaken.html>

⁹ <http://www.prh.fi/en/mallioikeudet/lomakkeet.html>

¹⁰ <http://www.prh.fi/en/mallioikeudet/hinnasto/hakemusmaksut.html>

¹¹ <http://oami.europa.eu/ows/rw/pages/RCD/communityDesign.en.do>

Office for Harmonization in the Internal Market (OHIM)¹², which is the official trademarks and designs office of the European Union. They register Community Trade Marks (CTM) and Registered Community Designs (RCD), presently for a fee of € 350, - per design¹³, and € 90, - fee for the first renewal after five years¹⁴. OHIM does not forward applications to WIPO.

Since 2008, an international application for an industrial design can be filed with WIPO. WIPO will then register the international application and send it to OHIM, which will have the same effect as applying directly for a RCD from OHIM. The fees are considerably lower (€ 54, - for each design, € 28, - for its renewal), and the scope of protection includes the countries of the European Union, plus 58 other states¹⁵. Similar to the Berne Convention mentioned in the beginning, all member states have ratified the Hague Agreement Concerning the International Registration of Industrial Designs from 1925¹⁶, last amended under the Geneva Act of 1999. The WIPO website also provides a library of registered designs, called the Locarno Classification¹⁷. Not only is it helpful to research other registered designs, and to see how an application looks like when filed successfully, but also necessary to determine the classification of one's own design.

Fortunately, the websites of both OHIM and WIPO are informative, and filled with helpful links and explanations. Sometimes it takes a while to find a link or certain information, but ultimately, both organizations are there to inform, and

¹² <http://oami.europa.eu/ows/rw/pages/OHIM/index.en.do>

¹³ <http://oami.europa.eu/ows/rw/pages/RCD/protection/theRCD.en.do>

¹⁴ <http://oami.europa.eu/ows/rw/pages/RCD/renewals.en.do>

¹⁵ <http://www.wipo.int/hague/en/members/>

¹⁶ http://www.wipo.int/hague/en/legal_texts/wo_hal0_.htm

¹⁷ <http://www.wipo.int/classifications/nivilo/locarno/index.htm?lang=EN#>

to help, and can be contacted. Besides e-applications, instructions can be downloaded as PDF-files¹⁸.

Finally, OHIM runs an illustrative and informative tutorial website under www.handsoffmydesign.com. Different learning areas are offered to teachers, professionals, and students, along with reference material, handbooks to download, animated tutorials, and a game zone.

Disclaimer:

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¹⁸ <http://www.wipo.int/hague/en/forms/>
<http://oami.europa.eu/ows/rw/pages/QPLUS/forms/electronic/fileApplicationRCD.en.d>
[o](#)