Bathroom Hideouts

A search for new ways of storing

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Abstract

My examination project during spring 2011 has been carried out in collaboration with DuoBad, a bathroom furniture company situated in Alsterbro, Småland. Their focus is to develop, manufacture and market bathroom furnitures with genuine craftsmanship. Through their partnership with some of the most influential manufacturers of quality bathroom products they can create an entirely new room to enjoy.

I initiated the collaboration with DuoBad for the examination project and have not started from a specific task, but together with the company I have been focused on adding new thinking regarding storage in bathroom furniture.

The goal with the project has been to, together with DuoBad, develop a conceptual set of bathroom furniture that provides new ways of storing.

The project was a close collaboration with users where experience gained through contextual interviews became the main source of inspiration.

The result of the project is a bathroom furniture serie called Mill. The name comes from the manufacturing technique of milling, which is the identifying form language of the product.
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Points of departure for the work

The first thoughts regarding my examination project came to me one morning when my toothbrush knocked down the cup where it’s being stored. My daily routines are being affected by the standard cabinet in my rented apartment, which is causing much frustration. It was this frustration that became the cornerstone of my project, where I combined it with my curiosity regarding if other has similar or other storage problems. Besides the storing I was also curious about how others are using their products, which is equally affecting the way of storing. As for example my toothbrush has it’s “correct” place but it’s obvious that the storing is not working for me and it could have been moved to a better place where it wouldn´t fall. But that could affect the way I use the product and feel even more frustrated than knocking down the cup every now and then.

The initial questions that I asked myself that defined my project were three simple ones that would help me throughout the work.

• How do people store and use objects in the bathroom in conjunction with the basin?

• What are their needs for storing?

• How can I improve their storage solutions?

Set-up

Users

First of all is it very important to come in contact with users to gain experience and to get an insight of how they plan and use their bathroom storage and get an insight to their habits and everyday routines in the bathroom area. For optimizing and getting as much experience from them as possible without losing too much time and valuable information the users are divided into groups. The groups will consist of users that represent a specific type of household and age group, which will in the end become a “circle of life”. The goal is to meet people from different stages of life, from students living in rented apartments to large families living in big houses. The gained experience will help me find new storage solutions that are based on the user’s needs and wishes.

My first thought was to focus on a specific type of prospective users and get an in-depth experience and make proposals suited for them, but that is too narrow. It would be better to gain experience from a wider range of different age groups. Having people representing their specific age group can though give you a constricted view of their group’s experience. This concerns especially when it comes to how the users use and store their personal products. Each user can give interesting experience from their own
personal life and from their age groups perspective. But compared to having several users for each age group I will gain a more detailed understanding on how many of them use the bathroom. Most important it will give me more time for each user which would benefit the given time frame in this project.

The household structure is something that is very important for the project. There are three main groups that are interesting; rented apartments, condominiums and houses. Each one of them represents different types of mindsets. A bonus would be to get in touch with users renovating their bathroom, where they could share their thoughts about their choice of furniture. My reflection is that depending on what household structure you live in it will affect your thoughts and ideas about bathrooms. I have for example a lot of ideas of how my bathroom in a rented apartment could be improved. Therefore I feel it is important to get input from users representing all three groups and gain understanding from them.

When I discussed my project with friends I noticed a resistance against interviews in and regarding their bathrooms, among many reasons because it is very private. I realized that it is important to give them the option of being anonymous, to not scare people away from participating.

My intention is to document the meetings with a video recorder. The users will have the option of remaining anonymous by not being seen in the videos.

My decision to use a video recorder was based on two aspects. The first is that it would let me be more focused on the actual meetings and not be distracted by taking notes or even pause the interview to document the discussions. I can stay focused on asking follow-up questions if there is something that I do not understand or something interesting that I want them to explain further. Second aspect is to make the work that occurs after the meetings easier where a video camera can help me re-visit a specific meeting, that I have conducted and help me find more interesting information that I might have missed. The videos could also be used for explaining and presenting my project.

Bathroom structure
When the meetings with users are conducted I will encounter a variety of different types of bathrooms. The structures of each bathroom are something that I have chosen to exclude from the project, instead I will focus on how the users use and store their products in conjunction with the basin, which is the most common storage area among all bathroom structures. In all bathrooms you will find a washbasin, mirror/mirror cabinet and occasionally high cabinet. This is what I have summarized from my own experience from many bathroom visits. With the gained experience I will develop proposals for a storage furniture without any regards to the room itself. It will give me
more freedom during the development of the proposals when I do not need to adjust it to certain dimensions in a room. My vision is that it will help my design process to be more user-oriented when the main interest will be on their way of use and storage of products in the bathroom. I also see it as a stepping stone for a first product that later can be developed to several types of furnitures for different bathroom structures. Then the prospective users can choose the kind of furniture that would work in their home.

Collaboration
Since I have no experience or knowledge of the bathroom segment my choice was to collaborate with a bathroom furniture manufacture. The company that I came in contact with was DuoBad which is a small bathroom furniture company located in Alsterbro in Småland. The company was founded by Niklas Hult and Lars Karlsson in 2000 when they presented their first prototypes for the market. They manufacture bathroom furniture’s using hardwood treated with a waterproof durable finish. The core of their business comes from a genuine craftsmanship. The production takes place among subcontractors all around in Småland where the furniture manufacturing is well known. DuoBad have also partnership with some of the most influential manufacturers of quality bathroom products. Where as they say: “Together we create an entirely new room to enjoy”.

The company is manufacturing their own furniture and combines it with for example wash basins, faucets, toilets, bathtubs and other products from other companies to give customers the ability to furnish the entire bathroom. For me who have no experience from this segment it was interesting that they work with other companies and the combination with their own productions is what the company represent.

My expectations of the collaboration are to get a better understanding of how the industry works and the various obstacles you can encounter. I am looking forward to gain and share experience with DuoBad since I have no experience from the area from before. The collaboration was at the beginning very free were DuoBad was interested to see what ideas I could come up with. Further forward in the project constraints were made by me concerning the collaboration and what the outcome should be. I wanted to divide the project into two parts where the outcome will be a proposal of a bathroom furniture that is commercial but with conceptual storage solutions, by that I mean that the solutions may not be suitable to produce today. This would open up for ideas that could be a stepping stone for new storage solutions in the near future, when the ideas are not affected by which production techniques the company or their partners can use today.

1 http://www.duobad.com/
To maintain a good collaboration my intention is to work in the same way as DuoBad works together with their partners, but with conceptual storing. It’s their way of working with companies that produce wash basins and faucets that I want to incorporate into the project. Another reason to work as DuoBad does is to get an insight into how the design and development of products is done in the bathroom industry, to get “real life” experience. Their way of working would also let me keep the focus on the projects first interest; the users’ usage and storing.

During a meeting with DuoBad they shared that sometimes companies have for example faucets from another company but with their own company name on them, that would explain my surprise when I found out how DuoBad is working compared to other companies that I thought manufactured all the different parts of their series. My intention is to create my own faucet and washbasin with the wanted functions and at the end match it with products from DuoBad’s partners. By incorporate the way DuoBad is working my focus, as mentioned, be even more on storing and usage of the furniture. Where my contribution for the company will be how the users use their bathroom furniture and what is missing and is in need of improvements.

The reason to why I want to divide the project into a commercial design with conceptual storing is a combination of how bathrooms has looked like since the late nineteenth century and how it has evolved, as I read about it in Adrian Forty’s book: *Objects of desire* (1986: page 167). It made me think about design versus storing when I saw the picture of an advertisement in the book by Twyfords from their catalogue year 1911. Our bathrooms have in many ways looked the same since that time and my personal reflection of the market today is that the storing is the big issue and the design is almost secondary. There’s clearly a race for the best storage solutions, which I feel is the big difference between different bathroom companies. Another reason for my focus on the storing is that the storage needs among the users are similar. The design of the furniture on the other hand is based on the user’s personal taste that varies among users. This is something that I want to avoid. By dividing the project my focus will be on the user and their storing. It’s for me the most interesting part where I want to hear their opinions about storing. The design of the furniture will be reflecting me as a designer and show my form language.
Lightning
After visiting different bathrooms I feel that there are two areas that are the most important in the room regarding usage: Storage and lighting.

This project has its focus on storage and use, therefore I have made a constraint regarding lighting. I have chosen to work with lighting in a more abstract way where I focus on the usage of the light and not on finding a solution of a specific type of light source. This will let me keep the focus on the actual bathroom furniture. The constraint is also made to help me avoid getting caught up among the technical terms and avoiding the risk of losing the users experience of using the light. As I have mention a lot is my main interest the users´ experiences regarding usage and storage.

Hygiene and cleanliness
For this project I have chosen to make a constraint concerning hygiene and cleanliness in the bathroom as a way of keeping focus on the storing. I will instead implement the users´ thoughts about hygiene but not conduct exploratory work regarding hygiene and cleanliness. I made the constraint regarding hygiene and cleanliness for the same reason as for lightning, to focus on the usage and storing. Also, after reading Objects of desire (Forty, 1986) because it occurred to me that it would be a project itself to work with hygiene and cleanliness. I want to maintain the focus on usage and storing and not open up the project, which would be hard for me to handle. This is based on experience from earlier projects where I have made the scoop too big which made it very hard to finalize it to a result.
Way of working

Several methods have been incorporated to help me gain as much experience as possible. With contextual interviews and post-it method I gained understanding of how users store and use their products within the bathroom, I also shared their experiences regarding materials being used in bathrooms through material vision. This in combination with study visits to better understand the gained experience. I had a focus group throughout the project that helped me maintain the focus on the users. Sketching were a tool for visual thinking and to share with the users.

Contextual interviews

For the contextual interviews I have decided to have the meetings in the homes of the users, where the interviews will be conducted within their own bathrooms. I believe that this will give the users a greater freedom when describing their activities, when they can show and tell how they use and store their belongings. My feeling is that by only explaining their activities valuable experience will get lost. By providing the actual room as a tool, my vision is that it will help them provide more detailed information about their bathroom storage and routines. Another reason to conduct the interviews in the actual bathroom is that the objects within the room can evoke questions and thoughts about possible improvements. A picture says more than thousands words and my hope is that the room will help me get a deeper understanding from the users. To be in the room and see with my own eyes what the users are talking about will give me the wanted experience.

Because of my lacking experience of conducting contextual interviews I found the book Conducting and Analyzing a Contextual Interview by Karen Holzblatt and Sandra Jones (1995) very helpful. It was a great inspiration for planning and conducting the contextual interviews. They explained how they work and many important thoughts about how to act and plan the interviews.

The most positive remark was that a lot of my own ideas of a good set-up were found in the book, especially about how to act as the leader of an interview. They write in the text about software development and the users working with the software. There was one part that will affect my work more than others in the text, which is the importance of staying focused during the interviews. Not only is it the polite thing to do but it´s more about being prepared for the way the users describe things and ask follow-up questions:

“People have typical tasks that they can talk about. If we ask them to describe these tasks, they speak in abstractions about typical meetings, what usually happens, a philosophy of work, and other musings about their roles.” -Holzblatt and Jones (1995: 242)
A lot from the book helped me form and prepare the contextual interviews. One of the most important things was to not lose the user during the interview, which for me could be a challenge when I want them to explain their behaviour in their bathrooms, which I feel, is where we mostly go on “auto-pilot” and are not reflecting on what we are doing. By being present during the interviews leads to more information when you can dig in to the touchstones that help people recall their experience as Holzblatt and Jones writes about (page 243). My guess is that I will probably have to ask them to reflect about parts of their behaviours, in other words snap them out of their “auto-pilot”. Concrete experiences will produce concrete information. All the activity is very concrete and having that sentence as a mantra will help me really dig into the different behaviours among the users.

Post-it method

In the contextual interviews the focus will be on the actual usage and storing of their belongings. After second thoughts I felt that there was a need of finding out what kind of products they use the most, to see if the different users were using the same kind of products. But also to exclude the topic of what they use from the contextual interviews were the type of products was not the main interest and by doing this would it be more focused on how they use and store.

It was during a tutoring with Fredrik Sandberg, where he demonstrated a method he has used that was based on post-it\(^2\) notes (Sandberg 2011), that I realized that I also could benefit from using it in my project. After discussing the benefits of using post-it and how it could be arranged for my project the method was adapted. The set-up of this method is to start from a scenario where the users have the most activities connected to the bathroom. For example the morning routine may not have much activities compared to the routines when you are going out for a dinner or party. That is according to my experience the routine in the bathroom that have the largest amount of activities. The goal is to make the users map out and visualize their bathroom activities.

My vision with this is to see what the users have in common and what products that are being used the most, which can help me to prioritize the most important products to store, and in combination with the contextual interviews see how they store these products and improve it. My presumption of the result is that it will be pretty similar to mine, plus/minus a few products and that it will basically give me a list of what is being used the most. This can help me prioritize among all the products being

\(^2\) Post-it is a registered trademark of 3M.
stored in the bathroom. For the design process it will probably help me facilitate the work throughout the project. It will during the later part in the process be easier to create concepts when I have the experience of what kind of products they use, how the look and what dimensions they have for an example.

Material vision
The third and last method that I am planning to use during the meetings with users is to ask for their opinions about materials that are often used in bathrooms. I have chosen to narrow it down when it comes to wood material, which is a broad area. DuoBad is working mainly with hardwood which is my constraint where I will introduce several hardwood materials and other materials with different types of finishes that are common in the industry. I want to gain experience from what the users are feeling about different types of materials in terms of finish and color. My hope is to find some common denominators which can guide me towards which materials and colors that could be interesting for launching new bathroom furniture. My preconceptions tells me that it could give me interesting inputs on what is liked by the different age groups, but could easily be unreliable since taste is very personal. Storing and using products are also personal but not at the same extension as asking what the users feel about different materials. My vision is by getting a greater understanding on how various materials are experienced, simultaneously as information on use and products are being documented, will it be no need for additional time to the survey on how various materials are being experienced. It will give me more time to the other parts in the design process.

Sketching
Sketching will be a vital part of the design process where the pen and paper is my way of thinking during a project. When I sketch down my thoughts in the beginning of a project it’s a way of testing the ideas, to get a feeling for which ideas that are worth working more on and which are more suitable as “back up-ideas”. Illustrating my thoughts through sketching will not only help me but also others such as the users I will meet. During earlier projects I showed users my sketches, using them as a discussion tool and a way of describing things when words are not enough. I feel that this is very useful especially during discussions to avoid misunderstandings and to make sure that the involved persons are on the same track, which I have experienced many times during earlier projects.
Focus group
In my earlier projects the focus groups were very useful when the work has been going on for a while. Especially to get “fresh eyes” on the project and sometimes they provide very good insights.

How the activity with the focus group will look like is something the outcome of the process will decide and the important part is to choose a group of users that are available to participate in a meeting later on in the project. For this work I have decided to select new users that are not connected to the contextual interviews to really get fresh eyes on the whole project, which I believe will give me new inputs and their curiosity about the project will make them even more inquisitive. My hope is that this will benefit the design process where I can spot problems early with the help of the focus group and not find them myself during the end of the project when it will be too late to fix. For the process overall will it maintain the close collaboration that I want to have with users.

When using a focus group I hope to through their input and discussions get a new view on the project which can help me see if I have interpret the users from the earlier methods right and that I haven´t forgot anything.

Study visits
Study visit will be a good complement to the other methods such as the contextual interviews and the post-it methods. I will do study visits to gain experience from areas that is connected to the project, which I think will benefit the design process. For this project visits will be conducted to get a greater understanding of how the industry works. I will probably find other areas of interest later during the work where I think a study visit will benefit the project. I believe that study visits are the best way for me to exchange information, it is easier to understand and ask questions if you have a face to face meeting compared to conversations through telephone or internet.

SUMMARY
• Conduct meetings to gain experience from users from various households and age groups. Rented apartment, condominium, house under renovation and house are the different households which will be interesting to explore.
• Video document all the meetings to maintain full focus on the user and on the actual method. Also provide the user the option to be anonymous to make it easier to recruit participants and respecting their privacy.
• Exclude the bathroom structure during the methods to maintain focus on how the users use and store.
• The work is a collaboration with the company DuoBad where we can share and gain experience from each other. Constraints have been made to divide the project into two parts; a commercial furniture and conceptual storage solutions.

• Lightning and hygiene will be excluded (to a bigger extend) from the project. I will work with the lightning in a more abstract way by sharing the users’ opinion about the usage of the light. The hygiene is not going to be a topic in the project more than to create understanding of the users’ view on hygiene.

• Conduct contextual interviews within the bathroom to give the users the ability to not only tell but also show how they use their bathroom. It is important to pay special attention during the interviews, to be alert and ask follow-up questions or make them reflect more if it’s needed.

• Use the post-it method to find out what products that are used the most, to make the contextual interviews easier, by mapping out their bathroom activities based on scenarios.

• Implement material vision to see what the users thoughts are about common materials that are being used by the bathroom industry, including DuoBad.

• Sketching will be present throughout the whole project as a way of structure my thoughts and present ideas to others such as users.

• Use a focus group later in the project to get input from “fresh eyes” on the project. For this work select users that have no connection to the earlier stages of the project.

• Study visits will be conducted to get greater understanding from areas that are connected to the project, areas that I have little experience from. To gain experience from people that have the information that I am seeking.
Design process

Parallel with the methods described above I have been reading literature which I felt could help my work.

The literature that has been the most helpful is *Conducting and Analyzing a Contextual Interview* by Karen Holtzblatt and Sandra Jones. Also Bo Westerlund’s doctoral thesis *Design Space Exploration* has helped me to understand my gained experience and to overcome the obstacles I have encountered during the design process. Dan Saffer’s *Designing for interaction* has inspired me with how the field of interaction design are working with users and how their design process works.

I think it is of great importance to present how you work in a structured way. Otherwise it would be almost impossible to give others the insight of how I work and about the process. This is in real life a creative chaos where you can’t really tag along and see what has happened. You need to have a guided tour by the creator himself – me.

Approach

With the foundation set from users’ point of view which will help me gain experience of how their situations looks like today, I feel that I am going to lack experience of how the process of making a bathroom works and the different factors that could have an effect on the bathroom furniture. There were questions that haunted me that I felt could affect my work. It wasn’t until after a meeting with one of my tutors, David Crafoord, that I found a solution. He helped me to reflect about my project relating to three different stages: Before, During and After. The three stages symbolize the different steps of a bathroom’s cycle. Before is when the bathroom is being built, During is when the bathroom is finished and being used and After is when the bathroom is being renovated and concerns what happens during a renovation. In these stages I can find different actors that are connected to the stages which can help me answer my questions. My vision is that the three stages will help me keep the conversations focused around respective stage and make it easier to dig deeper and gain experience suited for my project.
In *Before* it is interesting to come in contact with companies handling the plumbing which I think could change my work concerning how the users are being affected by this when they furnish their bathrooms. Other interesting companies could be carpenters with their knowledge on the process of making bathrooms and damage controllers preventing home owners from having problems in their bathrooms.

*During* is the biggest area with most focus on the collaboration with users to gain experience of their actual situations and obstacles they encounter. The haunting questions that I had was concerning the *Before* and *After* parts of the three stages. In *Before* the question was “What could affect my work? And in *After*, “What happens with the used furniture?” During these three stages there is one main question that could evoke others later on in the process:

- **Before:** What could affect the work in the early stages when a bathroom is being built?
- **During:** Through a prospective user’s point of view, how does their situation look and how can their storage solutions be improved?
- **After:** What happens with the used furnitures when a bathroom is being renovated?

**Sketch phase one**

I always start my projects by simply empty my brain of ideas regarding the subject, in this case the bathroom. We are constantly being loaded with information and with this sketch phase I can get rid of ideas that could affect the work later on in a bad manner. To best describe it I would say that it’s about “killing your darlings”. A common advice that I have been taught during my years in school, which in short means that you have to dare to take away the ideas that are brilliant but maybe not are working for the whole context. For me it is to download all ideas that I have before starting the project and start as “fresh” as possible. To put down ideas that can interfere and block new ones during the process because they are seen as “brilliant”. With the sketches I can go back later in the project and pick out the good parts.

At the beginning it always feels a bit unnecessary to do this phase, but later on in the design process I am glad that it was done. It could be compared to a cookie which you can take when the motivation is low. I think sketch phase one has the same “function” as the cookie to other phases later on in the design process, where the result from sketch phase one will help me throughout the process when it’s wanted or needed.
Home visits

To make the work as efficient as possible my decision was to conduct the three methods together with one user group per day. That also was a recommendation that I found in *Conducting and Analyzing a Contextual Interview* by Karen Holzblatt and Sandra Jones (1995: page 246). This in combination with having a structured framework will help me conduct the three methods efficiently. For me it is more useful to spend time after each interview to reflect about the visit while the experience is still fresh. This will prevent me from losing valuable experience as I would do if I waited with the reflecting until I’ve conducted several interviews.

This is based on experience from earlier design projects where I have put too much confidence on my memory and even though it has been documented in different ways such as pictures and videos much is lost if I do not take time to reflect direct after meeting. The most important is to be present and document in the best possible way for the project, which in this case has been to film the interviews.

Users

I came in contact with users from six different households that together would form a so called “circle of lives”, where each group symbolizes different steps through life. They represent the different age groups and households I felt were interesting for the project. In the beginning there was no problem to find potential users that could participate in my project, but as soon as I started to describe the project in more detail and that I wanted to share their experience concerning the bathroom storage several users hesitate to participate. Which I described earlier could be the same reaction I encountered during my discussion with friends regarding conducting interviews within the homes of the users.

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3 See appendix one for more sketches from this phase.
After I explained that they could stay anonymous they had no hesitations left against being a part of my project. This was the wish from the majority of the participants because they felt that the information is too personal to share. They will instead be presented by their gender, age and household structure. The users that will form the “circle of life” for this project was the following:

- **Young student:** Female 26 – Rented apartment
- **Young worker:** Female 28 – Condominium
- **Young Family:** (Pregnant female 28. Male 28.) – Renovating house
- **Large family:** (Female 44 and 10. Male 18, 21 and 45.) – Big house
- **Grown up kids:** (Female 50. Male 56 and 21.) – House
- **Seniors:** (Female 78. Male 81) – House

I was fortunate enough to get in touch with the different users that I wanted to include and the bonus of getting the different household structures. That I felt was necessary to incorporate to gain experience from a broader perspective, which could benefit the work during the design process. I had in advance high expectation on the young family renovating their house, who I hoped would contribute a lot when they had recently renovated a bathroom. My prejudice was that I would benefit more from the young family compared to the others who had not renovated their bathrooms or had not done it in many years. They had compared to the other users fresh experience from their choice of furniture. It is their thoughts regarding what they wanted in the room and their experience from the bathroom industry that I want to share.

**Post-it method**

I started the home visits with the post-it method which I felt was natural to begin with compared to the other methods. I had prepared for each person in the group to have a blank paper where they were going to map their routines. After explaining how I was going to work we had a short discussion to decide what routine to focus on. In most of the cases people felt that the morning routine was interesting, but after discussing switched to the routine “going out”. Routines when they were preparing for a night out, a date or something special when they want to look their best. As they described this was containing the most activities within the bathroom.

I tried during the preparation of the home visits to decide what routine to start from but with a variety of household structures it was hard to in advance decide what routine to map out from. But during the home visits I experienced that the most common suggested routines was “going out” and the morning routine before work/school. As one user reflected were these the only two routines that really existed for him, but majority reflected more on
the amount of activities connected to the routines.

With the help of a blank paper, post-it notes and a pen the users where mapping out their routines and helped me gain experience about their patterns in the bathroom. There were three colors of Post-it notes; green, yellow and pink.

The green color symbolized activities that are being done such as brushing your teeth. The yellow color was for them to write down the products that are needed to fulfill the activities noted on the green post-its. The last color, pink, symbolized what happened between bathroom activities, such as eating breakfast and getting dressed. The final step in the method was to use red and green stickers, where I wanted the user to mark out good (green) and bad (red) parts in their routines. With the red stickers they pointed out parts that could be improved or that are not working, basically problem areas. With the green stickers they pointed out the opposite of the red, parts that works very well and gives positive feedback.

![Picture 3. The material that was used for conducting the method.](image)

It was interesting to observe the amount of time they spent on thinking about what they did during their routines. Some of the users commented that they haven’t really reflected on what they do during their routines. Their minds are often somewhere else.

I also tested to do the method with the users separately or together depending on the household structure. The advantage by doing it individually was that they felt more eager to talk and I could easily start discussions about their notes on the paper. On the other hand it was entertaining to see couples doing the method side by side. Especially the young family expecting a baby, during the method they were comparing each other’s paper boards and gave comments on what they thought about the other person ´s activities. When they started their own discussion it made it easy for me to ask follow up questions when I needed more detailed explanation about something that I found interesting.
The negative side of this was when the users got too influenced by each other, which occurred with the seniors. It seemed like the female in this case was influenced by what the male’s opinions were on different parts of the routine. This happened several times during the method, she was very interested in what he wrote and it felt that her opinions shifted when it came to the order of the activities. It could also depend on their shared household which led the users to “double check” their mapping and see if they were “right”.

Besides testing the method in group or individual, the method was itself tested differently. I arranged it in one case to be done after the contextual interview to see what would happen. It was a significant difference in the way the users acted during the methods. While conducting the method before the contextual interviews the user was well prepared and had mapped out their routines thanks to the post-it notes. When it was conducted after it felt almost useless, all the thoughts about their routines was done during the interview which led to a lot of silence or interruptions. The idea was to let them show and tell during the contextual interviews, but the time flew by because of the thinking which felt more naturally during the post-it method. The method was more abstract and more flexible were the user could talk about the activity and not get caught up with the actual products they use. The biggest problem with this was that the interest from both me and the users was declining, which I felt was a warning sign since it’s important to maintain the users’ interest.
After having carried out the method my overall experience is that a lot of the routines among the users are similar to each other. The difference is in the details about what kind of products they use and is the most clear if you compare the young with the older users. The younger use more products, especially when it comes to products concerning make-up and hair, it felt that the older users had found what works the best for them and that the younger groups was more experimental.

The method itself did not have as much impact on my work as I hoped for but it turned out to be a good start for the visits. It helped them get started with reflecting about how their routines looked like and what products they used. It assisted them to visualize and with discussions we could together map out their routines and mark out areas of interests which could be a topic for the contextual interviews.

The impact it had on the design process was relatively small but very important. It was with the interaction with the users that the post-it method had its biggest influence on the project, where I got a natural start for the home visits. The users got an introduction of the whole concept of the home visits which was to gain experience from their way of using and storing their belongings in the bathroom. With the help of post-it notes it became very pedagogical where I easily could explain how it worked and they understood what my goal was with it, which could explain the outcome of the home visits. The method itself did not have as much impact as I hoped for. It helped them start reflecting about what they really do and what kind of products they use. As a conclusion the post-it method was an introduction for the users to get a quick insight of my project and what my expectations was on the home visit.
Contextual interviews
The second step during my home visits was contextual interviews with the user inside their bathrooms. The first task that I started with was to make them show me their storage possibilities. I thought it was important for me to see how the users store in their bathrooms before starting the interviews, to have a moment where I could “feel in the room” and see where they store the different things that they use. In this part all the storage areas were of interest, we didn’t exclude anything even if the project was focused around the basin. Overall experience from this start was that the users were storing products they used frequently around the basin and other products used less in other areas. A interesting detail was that they all had their toothbrushes stored in cups, the only difference between them was how many cups they used.

![Image](Picture 6. The cup that often was used for toothbrushes.)

I asked the users after showing me their storage possibilities to go through one routine that they felt was interesting for the project. In the cases when the post-it method had been done before the interviews this was were the first connections between the post-it method and contextual interviews appeared. Where they worked together and helped the user to focus on reflecting about their behaviour in a detailed manner during the interview, instead of reflecting on the basics. They almost automatically start referring to what they had mapped out with the post-its and started to show and tell exactly what they had written on the notes. The mapping was still fresh in our minds and they didn’t have to reflect on what they did and instead show it. This turned out to be a perfect match between the post-it method and the contextual interviews where I could refer to their mapping if the interviews were fading and help them start reflecting when they didn’t know what to say.

During the interviews all the users in the same household were involved in hope to help each other to reflect upon what they are doing during the routines, but also giving their view on the other person´s behaviour. This way felt best to avoid the interest from both me and the users from declining, as it I could do if I did it individually. It turned out to be useful when they among each other started to reflect on how they do their
different activities. Especially the moments when they were two at the same time in the bathroom, which occurred sometimes in routines that were connected to for example a party and dinners. These moments showed that it works fine when they do their routines alone, but as soon as the second person comes in chaos is created.

![Picture 7. Full discussion about the different storage areas.](image)

One of the first things that the users took up regarding use and storage was the counter top. For many of them it was very important to be able to put things on it, they couldn’t point out any specific products but just having the opportunity was important and what they could recall used frequently. They want the power socket to be connected to the countertop so they can use electrical products and also let them load while stored on the counter top.

Among the interviews one thing stood out. Products connected to the different activities were divided into sections within the storage areas. For example, all the products connected to teeth hygiene were stored in the same area, which would make it easier and faster to find the product when needed. One of the users that I met showed that it was mostly about reaching the products easy and be able to do it blindfolded so you could manage going through the morning routines. This user was one among many others that had the products used the most placed closest to the opening of their mirror cabinets. Products needed for teeth hygiene was the most common to place close to the opening. It was also common among the users to divide the storage between them, for example one shelf or side of the cabinet each. Except for teeth hygiene where they stored all toothbrushes and the products related to teeth hygiene in one place.
These sections that are well organized by the household's users has its resemblance with semantic layers which Klaus Krippendorff writes about in his book *The semantic turn* (2006: page 129). In the book he takes up the example of the three layers on a Xerox machine. The first layer is for the users to make copies. Second layer when something goes wrong and you need to open up doors. Last the third that is reserved for the technicians. These layers made me think about the different “layers” in the bathroom furniture. From the owner’s perspective there are not many layers except the ones that require a plumber to fix a problem such as water leakage, which for some owners couldn’t be fixed by themselves. The more interesting perspective is through the eyes of a guest who is using someone’s bathroom where it will appear more layers. First layer is to wash their hands after visiting the toilette and wiping their hands, which has products available to follow through the activities such as a specific towel for guests to use. The second layer that would appear is when the guest is opening the storage areas in search for something that would be needed, such as bandage. Third and last layer would be if something happened where they probably would inform the owners. These thoughts made me think about flexibility among the users in a household regarding how they store according to the different sections. How the sections was created between the users in the household.

Many of the users had their own storage solutions in form of small boxes and bags to help separate products from each other, in the same way as they keep products nearby that are related to same activities. For many it was a way to keep it clean when certain products get sticky and rub off, but also for transportation when activities took place outside of the bathroom. An interesting point was that the women had the majority of the space. My preconception was that they have a lot of make-up and other beauty products, it turned out most of the time to be true were the men in the households I visited had less products. These show the importance of getting...
in touch with prospective users and share their experiences. As in this case I had the preconception about make-up which was partly confirmed but I learned a lot by focusing more on that area where I had lacking experience. The outcome was that I got an even better understanding of the users, this had a very big impact on the design process since the users are the most important part of the project.

![Image: One user shows the boxes that she stores her make-up.](image)

Picture 9. One user shows the boxes that she stores her make-up.

Flexibility was something the users asked for in the mirror cabinet. For example they wanted freedom in the way of changing the storing. Products that didn’t fit often ended up on the top of the cabinet, which they pointed out weren’t their aspiration.

Shelves were a big topic during the interviews. They talked a lot about the dust that the open shelves collects, which wasn’t appreciated. It became very clear that the shelves were often used as a countertop for temporary storage, for example when they did their makeup, or for placing products that are used frequently. The users that had open shelves also used it to display products, for example their perfumes. One reason was that the shelf wouldn’t otherwise be used between the times when they used it as a temporary storage.

One user describes the general thought about having products on display very well:

“Most important is that it must be clean and tidy, the only thing that should be visible is the pump soap.” –Pregnant woman 28 – Renovating house.
During the discussion about the shelves I took the opportunity to test some ideas that I had on shelf solutions. One idea was sketched down and the other one was an idea I got during the first interview which I had no sketches of at the moment. An interesting thing was the reaction to the way I presented the ideas. The sketched idea became too precise and the users asked more about how it would work and tried to understand it more than the idea that I described in words. The one described in words was much more valuable when it became more of a discussion with the users. This gave me more interesting ideas from the users instead of feedback on my own ideas.

I got the impression from all the users that the best solution for storing is drawers. The biggest reason is the easy access but far more about having a good overview of the content in the drawers. Storage areas under the basin were good according to the users because it is an unused space, where nothing would be stored unless they could find furniture suited for...
that specific area. My experience about their thoughts regarding storage was
that they often had a frustration against regular cabinets with doors. As one
user said during the interview:

I understood that they often felt frustrated when using regular cabinets with
doors. As one user said during the interview:

“I can’t see what’s stored in the cabinet. It makes me want to tear it all out!” –
Male 56 – House.

The lightning in the bathroom was interesting to discuss with the users
because of the different age groups and bathroom structures. The younger
age groups used the sunlight a lot when they for example did their make-
up and moved around with the products to catch the sunlight. The older
didn’t do that and was most of the times relying on the lightning in the
bathroom. The lightning in the room was divided into two groups from the
users’ reflections: lightning straight forward and lightning straight down.
They felt that the light straight down was working with the small minus that
they needed to bend forward to catch the light if the needed extra. Their
thoughts about the straight forward light were interesting. It gave them
the wanted light to perform many of the activities, but the light was not
bright enough. The straight forward was basically the best light besides
certain activities that required more brightness than others.

After conducting the contextual interviews and watching the videos I felt that
contextual interviews were the best way to gain experience from the
users. With help from the camera my focus was on the interview and I
kept the discussions rolling and in combination with referring to the
post-it method the conversations with the users did not have many silent
pauses. The best choice I did for the home visits was to use a camera, it
made everything easier and it was only a few times where I missed to
film something a user showed. I had only two tasks to maintain: keep the
discussions rolling and record what the users were showing. To capture
everything was hard but the pictures in combination with the sound let
me “re-visit” the meetings and see details that were undetected during the
meetings.

Summary
The contextual interviews gave me a lot of experience about the users’ way of
using and storing within the bathroom, where the created understanding will
form the project and end up with a furniture that is based on the users’ input.
One difficult task was to summarize all the unstructured data that I have
collected. This summary is a try to structure the experience to help me see
them clearly.
• The products that were used the most among the users were more than often placed closest to the storage areas opening.

• Their routines can be carried out without problems when they are alone in the bathroom, if a second person comes in their routines were disturbed by activities colliding.

• Several of the users describe a specific need of having electrical sockets on/close to the counter top, where they could combine use and charging of electrical products.

• Among the majority of the users the storage was structured after the different activities. For example the products connected to teeth hygiene were often found together at one place.

• The users wanted a more flexible storage so that they can adjust it to the shifting amount of products, for example when they buy several of the same products because of a good deal in the supermarket.

• Shelves and drawers were the two storage solutions that the majority of the users thought worked best and used frequently. At the same time they didn´t like the open shelves because of the dust they collect. The drawer’s advantage is the possibility to get a good overview.

• The younger users used the sunlight as much they could during make-up activities, but felt a need for some replacement when there’s no daylight. The users were in need of a solution that could provide them with bright light during certain activities, such as make-up.

Material vision
The last stage of the home visits was to collect the users thoughts about different materials used in the bathroom industry, with focus on hardwood that is being used the most by DuoBad. The set-up for the method is to combine pictures with text to provide the user with the information that is needed. The text will be more of a back-up for the users to get a greater understanding of what the pictures are describing. I did ask them to categorize the different materials in three categories: Definitely not, would consider and wants. By categorizing the materials it will be easier for me to summarize the results. It’s important during this method to let the user choose how many kinds of material they want to place in each category, therefore I gave them the instructions to fill in as many materials as they like.
The conclusion is that the method was too simple and as I said in the beginning the personal opinions could be a problem. My first reaction was that it went too quickly when they filled out the papers. Maybe the exercise was too controlled with no room for discussions and reflections. That it was the last method might have affected the result, some users saw the opportunity to quickly end the interview by writing two materials they really liked and but the rest in the column definitely not. Among all the different age groups oak and whites were the top two materials.

**Sketch phase two**

In the second sketch phase I incorporate the created understandings from the three methods (post-it method, contextual interviews and material vision) into the project. My work was mostly influenced by the contextual interviews and the input from the other methods was not used at the same extend. The results from the post-it method backed up the results from the interviews while the Material vision gave me a small insight of what the users preferred in the bathroom.

I have thought a lot about my approach towards the input from users and other new experience in this project, how I work as a designer and how my

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4 See appendix 2 for more sketches.
gained experience will be used. For me it has often been difficult to describe how I work when it is done automatically and I have not reflected about what actually happens, how I utilize the experience.

When I read the book *Designing for interaction* by Dan Saffer (2010) became clearer for me and I felt that I could grasp how my approach is towards the use of my gained experience in the project. In the book Saffer goes through several different types of approaches from the field of interaction design (that are used in other fields as well), which has for some reason been the field where I have found most resemblance with my way of working. This is probably about how I handle information where my difficulties are about grasping material around the same specific field of design connected to the project I am working with. It becomes too detailed and for some reason I need some distance from the material so I can do my own interpretation before using it, which would explain my interest for the field of interaction design. I have little experience from the field of interaction design when it comes to designing software and other “pure” interaction designs when there’s no physical products involved. In the book Saffer has made a table of four different types of approaches to design that helped me in a easy way to see how I worked during this project and also in general.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Overview</th>
<th>Users</th>
<th>Designer</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-centered design</td>
<td>Focus on user needs and goals</td>
<td>The guides of design</td>
<td>Translator of user needs and goals</td>
</tr>
<tr>
<td>Activity-centered design</td>
<td>Focus on the tasks and activities that need to be accomplished</td>
<td>Performers of the activities</td>
<td>Creates tools for actions</td>
</tr>
<tr>
<td>Systems design</td>
<td>Focus on the components of a system</td>
<td>Set the goals of the system</td>
<td>Makes sure all the parts of the system are in place</td>
</tr>
<tr>
<td>Genius design</td>
<td>Skill and wisdom of designers used to make products</td>
<td>Source of validation</td>
<td>The source of inspiration</td>
</tr>
</tbody>
</table>

*Picture 14. Table of four approaches to design by Saffer (2010: 33).*

By looking at the table Saffer has provided in the book which gives you a quick comparison of the four approaches, I feel without doubt that my project are a user-centered design in the foundation. But as soon as I start reflect about it is my view becoming slightly different. My work with the users was to focus on their needs and goals, but the translation of the created understanding are very much influenced by the Genius approach. During this project I couldn’t use my skills and wisdom because of the
lacking experience of working with bathrooms and bathroom furniture’s. More or less I was forced to work with users and gain the needed experience otherwise it would be purely based on a Genius design approach, which in this case wouldn’t work when I don’t have the proper skills and wisdom to make the furniture.

My view on user-centered design is that genius design is a part of it, according to how I use the approach most of the times. The overview is to have the focus on the user’s needs and goals which are the sources of gaining experience. Where I see it as a collaboration where the designers and the users exchange experience and together create new. The users are not the guides of design which I feel is too controlled and is more gaining when I am getting inspired by them, where their experience is being the inspiration for my work. To best describe my way of working I would create a fifth approach to Dan Saffers table; User-Collaboration design. It has very much resemblance with user-centered but for me it is not the focus, it is more on the collaboration where me and the users together creates experience which will form the work. The user would be in other words the source of inspiration which is the gained experience that I use in the work. The bottom line is that my version and user-center is based on the same foundation: the users’ experience.

Table 1 User-collaboration design.

<table>
<thead>
<tr>
<th>Approach</th>
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<th>Users</th>
<th>Designer</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-collaboration design</td>
<td>Exchanging experience with users about their need and goals</td>
<td>Source of inspiration</td>
<td>The source of gained experience</td>
</tr>
</tbody>
</table>

Genius design was introduced to the project during the stage where it was divided into two parts: the design of the furniture and storage solutions. Each part had its own approach where the design of the furniture was based on genius design, where I sketched on how I wanted it to look and where I was influenced of what I experienced during the home visits. The storage solutions were user-centered where I sketched on solutions that were based on discussions and other things experienced during the home visits.

Flexibility was the lead word in the sketching phase where I wanted to incorporate the experience that I had from the home visits. During this stage was the focus to get as many ideas as possible that could be developed further which in the end would be the result of this project. Basically this was the beginning of the evaluation process that will start after this phase.
Exploratory work
At the same time as I finished the home visits my exploratory work started. The purpose was to learn more about the market and see how companies’ works with sustainability and what the present and coming trends are. I planned study visits to companies working with renovation and installation in bathrooms to see what obstacles they encounter that could affect the bathroom furniture I am developing. During the home visits it occurred to me that I did not have enough experience about make-up, so I also planned study visits to make-up stores.

Fair
During a meeting in the beginning of the project DuoBad gave me the tip to visit the fair ISH\(^5\) in Frankfurt, Germany. This according to DuoBad is the biggest fair in Europe for bathroom manufacturers.

The fair was enormous and I understand why it is the biggest meeting point for manufactures from all around the world. My plan for the visit was to meet the companies\(^6\) that DuoBad has collaborations with to get knowledge of their view and goals towards sustainability and the future. Besides spending time with the companies with connections to DuoBad I walked around in the fair to take in the atmosphere and get inspired.

The fair was all about water and energy. In almost every stand, companies presented their products as a good solution for saving water and being energy efficient. My overall reaction was that they had much more focus on the water consumption, which I feel can be a reaction from the alarming news about our water consumption and the increased loss of drinking water as I have read about in an article at MiljöAktuellt\(^7\). In the article FAO (Food and Agriculture Organization of the United Nations) announced during the International World Water Day 2011 the deforestations role when it comes to the extensive loss of drinking water. Where they predicted that in about fifth teen years around 1.8 billion people will live in areas with severe deficiency of water, at the same time will two-thirds of the world’s population feel water stress.

The biggest reaction that I had at the fair was about the focus on water consumption which I felt left the energy consumption behind a little bit among bathroom manufacturers. In some cases it appeared as if the companies was hiding their production techniques behind the water consumption, where they talked only about the use of less water but as soon as I started to ask about how it was manufactured they didn´t have that much information. One company I visited gave me a hint on

\(^5\) See appendix 1 for information
\(^6\) http://www.duobad.com/
\(^7\) http://miljoaktuellt.idg.se/2.1845/1.375091/fao-varnar-18-miljarder-manniskor-kan-lida-av-vattenbrist-2025
how it could be in the industry, when he described their assortment: “Good for the usage of the product, but not as good for the production”. This for me felt strange when the fair was all about water and energy but it felt like the majority of the stands I visited had left behind or forgotten about the energy. The information that I could find about energy consumption connected to the productions of the companies assortments was overall texts about certifications such as EMAS (The EU Eco-management and Audit Scheme) and different ISO (International Organization of Standardization) standards for Environmental Management Systems that showed that their productions is sustainable according to different standards.

Among the companies connected to DuoBad hotels were the biggest clients where water consumption and customization was the main topics. Through all the products in the companies assortment was the amount of water that are being consumed important, which was most clear during my visit to Laufens stand where I got a guided tour through the whole assortment. They talked about the amount of water being used in toilets, bathtubs and washbasins. But also about the hygiene and cleanliness were they treated their toilets and bathtubs with anti-bacterial substances that would reduce the use of chemicals at home. The only maintenance needed was a drip of soap on a piece of cloth.

The water consumption in toilets was about the amount of water needed to flush it, with the goal to reduce it even more. Faucets were the biggest water saving product with a variety of different ways to save water. From fully automatic faucets based on sensors that reacted when hands where held under it, semi-automatic faucets with touch screens to easily give the right temperature to the water in a traditional faucets. The kind of faucets that I felt was the best for consumption awareness was the automatic faucets based on sensors, in which you could set an interval on how long the water would pour when you activated it. On the other hand Laufen had interesting faucets that was a traditional faucets but with a built-in resistance. A resistance that gave awareness to the user that if you stop it will save you more than 30% water compared to if you pass it, which I felt was a nice and easy way to communicate with the user.

The other topic was customization which was very clear at Villeroy & Boch´s stand where they had several products showing it. They had a new line called O.novo Style which had patterns you could choose to be printed on the washbasins surface. I had mixed reaction to this. I pictured a scenario with many private homes being furnished with patterned washbasin and the next owner’s reaction to the basin. This could be a huge increase on sale for the company if it would be a success for the market of rented apartments, but is probably suited for condominiums and houses. Another way to personalize
the bathroom that Villeroy & Boch had thought about is with music. One of their new series called +Sound has a digital sound processor in the mirror containing six speakers, that has a wireless transmitter which lets you control it with the help of Bluetooth devices such as iPhone and iPod.

![Image of O.novo Style by Villeroy & Boch.]

My overall reaction towards colours and material was that you could often divide it into two groups: inspiration from nature and individualization. The products inspired by the nature were often a combination with nature landscape pictures and bright wood materials. Products inspired by the individualization where most of the times presented with intensive colours (yellow, orange, purple, turquoise etc) that could be provided to the costumers.

![Image of My nature by Villeroy & Boch.]

**Study visits**

*Renovation and installation*

To gain experience concerning the *before* and *after* part of this project I visited companies that were connected to these stages. The first company was Hammarstedt that are working with plumbing and installations in bathrooms. They talked a lot about the biggest danger: moisture. Dripping water is the common thought about what would affect the bathroom the most but it’s the moisture that is the most dangerous. The common mistake people make according to Cerry Holmström is showering with an open door, this lets moisture out and damages other things outside the bathroom that are not suited for being exposed to moisture, such as walls (most common in
houses from 1960’s). Dripping water is the least problem when everything in a bathroom is treated for being exposed to water, except cheaper products that sometimes uses veneered chipboard that sucks up the water and swells up.

The second company was Accent Golv which is a carpenter firm. They talked about the order of making a bathroom, where the owners has decided in advance what type of furniture they will install. This to let the plumbers know how the pipes are going to be fixed and then it is the carpenters turn to lay the floor and walls. It was also during this stage they could see if there were any needs to reinforce the walls with fixtures for wall mounting.

This was interesting information that I didn’t know about, that you have chosen your furniture in advance, which leads to that there are no need of much space behind the furniture for mixing with the pipes because it’s being taken care of before installing the actual furniture in to the bathroom.

**Make-up stores**
I went to several make-up stores and talked to experienced people that helped me understand what type of products many of their costumers use. My experience of make-up is very constricted which I felt during the home visits. I wanted to experience the different kind of products and get a greater understanding of how it could be stored in the bathroom. The stores I visited were:

- Parfymeri Cazandra, Nybro
- Parfymeri Marguriten, Nybro
- Make Up Store, Kalmar

They all picked out the products that they would say are being used the most, based on what they sell and personal reflections when all the people I met were women who used make-up. They all told it was divided into two main categories; make-up and products for removing it. The make-up products were often small and would be easy to store, but the costumer has several of the same products often in different colors. The cleaning products had bigger containers than the others and were often stored in areas nearby the make-up. Valuable experience which I believe will help me find solutions for storing make-up that I felt was hard because of my lacking experience.
I went on a bonus visit to one of the local grocery store where you can buy products related to make-up activities; hair products. The reason was to know more about the different sizes of the packages which I found out varies a lot among the brands.

**Second use**

It was interesting to sum up the experience from the home visits and the study visits about the stage *After* (when the bathroom is being renovated). During the home visits the users did not know what happened with the bathroom more than that it would probably be thrown in a container. With my interest and background from the furniture industry where I think about the recycling in my work I had a hard time to believe it. But the study visits gave me a similar answer from the people I met who are working in the industry. Their experience was that in the majority of the times the furniture are thrown in a container. This surprised me not because they threw it away, but more because they told me that most of the time there is nothing wrong with the old furnitures. This was a bit strange that functional bathroom furniture were thrown away and not re-used. Instead of doing
this they could be given to a second hand store or taken care of by someone else. This made me think about the possibilities for DuoBad to show their good quality of the exclusive bathroom furniture that they manufacture. As a marketing strategy they could take care of the old bathroom furniture while providing the new and then sell the furniture to new customers to a reduced price. This will show a combination of a sustainable thinking but also as a way of showing their good quality.

**Three concepts**

After the exploratory work and the sketches phase two were done I put down all the thoughts and ideas into three concepts. It would be easier for me to evaluate three concepts instead of having many loose sketches. The concepts had different focus; Space/Surface, Traditional and Routine. My plan was to introduce these concepts to my focus group to get their opinions and see if there’s something more to add.

![Sketches of the three concepts. From the left: traditional, space/surface and routine.](image)

Space/Surface had focus on creating as much surface as possible, which was appreciated among the users and they would have a lot of areas for storing. I wanted to test and see what the focus group felt about using the space at the side of the basin for storage instead of the space underneath. This would let you be more flexible with the placement of the mirrors which could be moved to the side.

*Traditional* was focusing on the three parts of a traditional bathroom furniture series: high cabinet, mirror cabinet and washbasin with cabinets. I wanted to see what the focus groups thought about the traditional three parts, updated with a mirror on the high cabinet to make it easier for couples to go through their activities at the same time. In this concept I’m providing as many drawers and shelves as possible to maximize storage possibilities.

The last concept *Routine* was inspired by the way the users store their products that were used the most, which were easy to find and grab. The concept includes easy access to roll out shelves at the sides of the mirror.

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8 See appendix 4 for a larger picture of the concepts.
cabinet, combined with a temporary shelf that can be folded down. The drawers underneath the washbasin are different compared to the traditional concept, of which two are big drawers that are divided in a new way.

Parallel with these three concepts I sketched further on possible solutions that maybe could be incorporate to my concepts. It’s important to point out that I have chosen, for clarity in the thesis, to divide my sketching phases into several stages as they during the project ran into each other. In reality they didn’t work as several phases but to give clear idea of how my process has been working a dividing was necessary.

**Focus group**

The set-up for the focus group was similar to the contextual interviews. I visited the user at their homes. The members of the focus group had no connections to the earlier stages of the project. There were two different households which contributed with diverse experience to the project. The members of the focus group were:

- **Grown up kids**, (Female 51, male 56) – house
- **Young students**, (Female 21 and 20 – rented apartment)

My vision was to discuss my concept with the group and listen to their thoughts and hear their opinions about the different storage possibilities. I planned to start discussions about all three concepts and my thoughts about them. Then with input from the focus group pick out the best parts and assemble them into one concept.

For the meetings I had prepared small prototypes made out of paper which would help me explain and show the different ways of storing. The prototypes didn’t have any scale and was built with the purpose to show the different storage solutions in the concepts. For example the high cabinet in the concept *Traditional* has drawers and a cabinet door that could be open to show the storage area. In combination with this I had the sketches of the concepts that explained how the different storage solutions worked.

*Picture 20. The paper prototypes and the high cabinet showing the storage possibility.*
The paper prototypes help the discussions, where we could point and explain. The focus group liked the drawers where they could get a good overview when it was fully drawn out. But they didn’t understand the reason of having two drawers instead of having one as in the concept routine. They felt it was unnecessary when it would be easier to have one big drawer.

The users started directly to give feedback on the concepts as soon as they could get their hands on the paper prototypes. They started later on combining their own concept by taking parts from the three concepts. For example the majority of them liked the Traditional that they felt would fit private homes the best, combined with the fold out shelve in the Routine concept. After going through the three concepts and reflecting about them, I started sketching on the final concept based on what I had experienced from the focus group.

![Picture 21. Demonstrating the fold out shelve for one of the users.](image)

**Sketch phase three**

It was time to work on the final concept and incorporate all the gained experience. I sketched on both the design of the furniture and the storage solutions. They were divided in these two categories which at the end were merged to become the final concept.

**Storage solutions**

The catchword during the sketching was flexibility, where I wanted to develop a concept that includes the experience that I had gained from the users. I took the best part that I experienced during the whole process and sketched on how it could be incorporated into one bathroom furniture series. During this part I looked at new materials that could be interesting for me, materials that are at an experimental stage that in the near future could be a realistic solution.
The biggest inspiration came from Gecko Tape\(^9\) which gives you a new way of fixating parts that easily adds flexibility to the products. Elastic polymer caught my attention with their very flexible qualities. The company 3do Lab\(^10\) has developed a material which is an elastic polymer that they call “smart molecules” that has interesting abilities. When it gets a quick force on the surface it reacts and gets rigid, which inspired me to find out if it could be evolved to be rigid when it is being fixated to something. As if you had a really flexible box that you could stretch out to the wanted size and fixate it to the sides of a drawer. You could combine it with gecko tape and get an interesting result.

I also looked at combining these conceptual materials with solutions from today. Such as extruded aluminum that I see has much potential Göran Lindblad\(^11\) demonstrated it very well in his winning contribution for the Aluminiumdesign 2009, which inspired me.

It was very hard to incorporate all the different solutions that I had created without knowing the dimensions. The measurements were all based on my own experience from study visits and fairs.

![Picture 22. Sketch on a idea of combining gecko tape and the “smart molecules”](image)

The design of the furniture

In the early stages I made the decision of dividing the project in two parts: *commercial design* and *conceptual storing*. Where this part focus on creating the design of how the furniture would look like. Unlike the methods were I created an understanding from the users, was the focus here to base everything on my intuition and that the design would reflect me as a designer.

At first I was very inspired by smooth edges and wanted to create a softer look for the furniture, but by having soft edges you will lose storage area that could be important if you want to maximize the storage. After this I focused on working with box shapes which I felt was the best to work with regarding

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9 http://www.wisegeek.com/what-is-gecko-tape.htm  
10 http://www.youtube.com/watch?v=8EBWGbhsuws&feature=related  
11 http://www.bumba.se/  
12 See appendix 5 for more picture from my sketch process
storage. My goal was to add something more that would be a contrast to the box shape. That something “extra” was added when I tried to hide the dividing lines that are created between the drawers. By enhancement the dividing lines will be a part of the design and not an outcome of the drawers. After sketching on it the result was that all vertical dividing lines were placed in the corners to hide them. The horizontal lines were enhanced by combining it with a milled detail which ended up being the identity of the furniture (figure 6.6). Which explains the name it got; Miller.

Material and color

It was during my visit to the ISH fair in Frankfurt that I set my mind on what the main material for the furniture was going to be used; treated wood. It’s the most used material for building storage furniture, in combination with porcelain basins and metal faucets. It’s resistant against moisture as I experienced is the biggest problem in the bathroom. I based the choice of material on my experience from the fair, my visits to retailers and companies connected to the industry and the home visits to stakeholders.

Bright colors in combination with wood patterns was what I saw used the most during the fair but also during my home visits, were the majority of the users used light colors (often white) in combination with some accent color. It was often combined with accessories that acted as the accent color, the users wanted to be able to easily change color when they wanted too. Also by looking at the result of the material vision I did experience that the majority of the users categorized oak and white as the most wanted color and material in the bathroom. The white was often chosen because it felt the most hygienic and easy to clean according to several users.

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13 See appendix 5 for a larger picture of my sketching process.
With the created understanding from the fair and users I continued working on what colors Miller would be launched in. I looked at how the milled tracks could be enhanced even more. The first clear choice was to have a complete white version where the track would create a shadow which would act as an enhancement. The second became an oak edition where the contrast would be between the basin and the furniture. The third is a middle step between the complete white and complete oak, where the tracks are being enhanced by the oak. The last and the one that I would choose to launch the series with; White stained ash with white tracks. It was the small contrast between the ash and white tracks that I liked.

**Sketch phase four**

After finding the final design on the concept (both regarding the storage solutions and the design) I started to create a 3D model with the software called SolidWorks. It is a useful software where you can build up 3D models and fast and easy change dimensions. There is also a built-in rendering software that can simulate different materials and show how shadows will
appear on the model depending on where you put the light source. It is very useful to see how it would look like with the right dimensions. During my field trips and visit to the fair I studied the bathroom furniture’s basic dimensions such as heights and depths. I paid extra attention to dimensions that I felt made it easier to perform different activities. It was these dimensions that I incorporated to SolidWorks for finalizing the concept.

![Picture 26. The model rendered with Solidworks.]

**Matching concept**

With the final concept done and the right dimensions set it was time to choose basin and faucet. As I mentioned before my goal was to work as DuoBad where they match basin and faucet to their concept. After looking at the products from companies that they have collaboration with both products were found from the same company: Villeroy & Boch (figure 8.8 Picture of the two products). The basin had the same edgy design as Miller that I felt worked very well with my concept. It has two counter tops on each side that will give the user possibility to temporarily store things. The hardest part was to find a faucet that would match the concept. My first thought was to pick a sensor controlled faucet which is good for the water consumption, but there were no one that worked with the design of the furniture. It wasn’t until I started to look at other faucets I found the series Cult by Villeroy & Boch. The good thing is that the faucet has a built in resistance in the tap handle, that lets the user know if they stop at the resistance were they will use 30% less water. The form of it had much resemblance with my concept, especially the transition between the shapes from under the tap to the side. It reminds of the transition from the milled tracks to the drawer fronts.
Prototype

For this project I had planned to make a full scale prototype, but it turned out to something else. The parts that were going to be made were divided between me and DuoBad. I prepared drawings of all the parts which the carpenter at DuoBad was going to build and paint. The lightning was being handled by DuoBad and I would fix the glass parts. Unfortunately DuoBad got no response from Villeroy & Boch regarding if they could borrow the wanted basin and faucet. The time left was too short for making a full-scale basin and faucet on top of building the furniture.

Then we had to find another solution. It was important for my project to in some way show the storage possibilities. The solution that worked best was to 3D-print\textsuperscript{14} the concept, were I could get the exact design of the concept but in another scale. The new goal was to 3D-print the result as big as possible according to the machines limitations. The result became a scale model of 1:7.5.

\begin{center}
\textit{Picture 27. The basin Metric Art and faucet Cult from Villeroy & Boch.}
\end{center}

\begin{center}
\textit{Picture 28. The 3D-printed model.}
\end{center}

\textsuperscript{14} \url{http://www.wisegeek.com/what-is-3d-printing.htm}
Result

Miller is a three piece series that consist of a washstand, mirror cabinet and a high cabinet. The mirror at the high cabinet makes it easier for two people to perform their bathroom activities at the same time. All the drawers and cabinets are equipped with a push-function which lets you open and closed them by a simple push, which is good when your hands are occupied.

In the bottom drawer of the washstand there are big dividers on both sides of the drawer which can be dragged out along the sides. There are rubber bands connected to the dividers to stabilize spray cans and other high products that can easily be tipped over. There are two small dividers stored on the big divider, these can be used to create smaller sections for organizing your belongings.

The middle drawer of the washstand is similar to the bottom drawer, where you have dividers from both sides to create sections. In combination with this you have several boxes that can be used for storage.

See appendix 6 for a larger picture.
The boxes are elastic and can be stretched out to the wanted size and fixated between the dividers, you can also connect several boxes to each other to make them have equal size between the dividers.

In the back corners of the drawer you will find power sockets where you can recharge your electrical products such as an electrical shaver. The same set-up is found in the middle- and top drawer in the high cabinet.

![Picture 31. The middle drawer of the washstand.](image)

There are small drawers underneath the counter top of the basin, where you can pull out dividers in the back of the drawer. This can also be combined with the elastic boxes.

![Picture 32. The top small drawers of the washstand.](image)

The high cabinet has three drawers and the bottom drawer is designed for products related to hair styling. On the right side in the bottom drawer there is a “machine box” with holders for the different products such as hair dryer and curling iron. There are moveable pins to use for customizing the drawer for each product. In the front of the box there are three power sockets and space for the cables. The box is ventilated in the bottom to let the heat out through the cabinet. Inside the drawer there is a basket to keep the hot products from coming in contact with the furniture. Next to the machine box there is a smaller version of the storage solution as in the bottom drawer of the washstand.
While using the mirror on the high cabinet you can push out the fold out tray where you can store your products that are being used at the moment. It has the same push-function as the rest of the drawers and cabinets.

Inside the high cabinet you will find several shelves that are moveable along rails. The shelves are easily moved and can be organized after you need.

The mirror cabinet has a fold down shelf that can be used as a counter top during activities connected to the mirrors such as make-up. Behind the fold down shelf are two boxes available for storage, inside them there are small dividers. The insides of the boxes have fold-up lids and can be removed and used as for example make-up bag during travel.
Inside the mirror cabinet you will find forty foldable shelves that will help being more flexible. By pushing up the shelves you can make room for products in different sizes. The double side mirrors will help to get a “all around view”, to see areas which can’t be spotted with one mirror.

The lightning has an extra function more than providing light inside the cabinet and towards you. Underneath the cabinet there is a sensor button that activates a boost of light so you will under a period of time get extra brightness, for the activities that are in need of it.
**Further work**

In the beginning of the project I described that the conceptual storing could be a stepping stone for new solutions in the near future. What I realized afterwards was that the way I worked helped me from getting stuck with my limited experience of what can technically be done today. Instead I got a lot of new fresh ideas and some of them could be produced today. For example the foldable shelves in the mirror cabinet can be solved with the idea that Göran Lindblad created for Aluminiumdesign 2009. All the dividers can go on rails. The only part that could not be a reality in the nearest future is the flexible boxes that you stretch out between the dividers. A solution for today could be boxes of fabric, a series of different sizes of boxes that the users can choose between and pick the ones fit their needs.
Discussion

In the beginning of the project I asked questions that would help me define the start of the project. How does it look afterwards, did I find the answers during the project?

- How do people store and use objects in the bathroom in conjunction with the basin?
- What are their needs for storing?
- How can I improve their storage solutions?

During the contextual interviews I got a very clear insight of how many of us have structured our bathroom regarding both storing and use. But to say that I experienced a general way of storing and using products would be a lie.

My choice to collaborate with users representing different age groups was on paper very promising but afterwards felt as narrow as if I would focus on several users from one specific age group. It felt though as the right decision to work with different age groups where the inputs was more diverse, but unfortunately it was not deep enough to be representing how the different age groups is using their bathroom overall when much is based on the users themselves, how they are as a person. I feel that they shared fragments of how their age groups could use the bathrooms. These fragments was interesting and became the main source of inspiration, which I feel was the most interesting with the project when my creativity got a kick start as soon as I conducted the home visits and especially the contextual interviews.

The group of users that I called “circle of life” was the reason that I got an interesting project, were their different ages and household structures contributed a lot to the project. It was in a few situations that I experienced similar reflections which were between users with few years between their ages but from different household structures. This indicated that I was on the right path but at the same time it was not enough to have only one person representing their age group. It would have been more valuable to have several users in every age group so I could see similarities which would strengthen and pin point common areas of problem or positive experiences.

Their household structures were something that didn’t contribute much to the project. The rooms itself was so different from each other but at the same time the bathrooms did not differ as much as I had hoped for, they all had very similar furniture. The visit I gained the most from through a household structures point of view was the young family, whom had recently renovated their bathroom. With them I could share their thoughts about what they wanted and about the result after the renovation. I realized early that the
room itself wouldn’t contribute much experience and that the users and their thoughts more than their reality of how they use and store would be the biggest source to gain understanding.

When I look back on the meetings I had with the users I realize that I got insight in their present storing but not as much about their needs. In the beginning I got caught up with what the users had in the bathroom and what they used, that could be a reason to why I felt that input about their needs were missing. Their needs were not totally left out but if I would weigh the experiences against each other the result would be that I got the most input from how they have organized it today. But I wouldn’t be so sure that it would affect my work more if I had found out more about their needs when their situation today triggered my creativity to find new ways of storing. It was their own reflections that inspired me about how they store and use products, to see their own solutions to their storage problems.

This answers the last question I had on how I could improve their storage solutions, which in some way was the question I asked myself throughout the whole project. My design process was positively affected by the users and their reflections on their usage and storing, this helped me create proposals. The most helpful was not to understand their needs and what they wanted but to take part of their reflections on how they used their products and storage areas. To see how they have solved their storing problems within their bathroom was the biggest boost for my creativity. Even though the focus wasn’t on their needs I do believe that their needs were brought up during their reflections. It would have been interesting to see if it would have been a different result if the focus was on the needs during a second meeting. Especially after they have been introduced to my project and well aware of my intentions with the meetings.

During the home visits a video camera was used to document the different activities that I conducted. My overall experience to filming the interviews is positive when it gave me more possibility to interact with the users, but it had its flaws as well. I relied on the video camera too much and there were moments when I couldn’t follow the conversation because of how I handled the camera. It would have been much more efficient and also a contribution for the discussions to have a camera man that documented all the home visits. Besides that they could join the conversations they would let me be even more focused on the collaboration with the users and my response to the users could be even more efficient.

If I had not made the constraint of focus my project around the basin the troubles I encountered with the video documentation would be much bigger. The result would have been much harder to achieve. Even though I felt that in the beginning it was too narrow with the constraint I am glad that is was
made. The constraints made the project manageable especially when it was a project in which I have no experience from the bathroom industry. It was my level of experience that made the constraint successful and I believe that the project wouldn’t end up with something interesting if the constraint had not been made.

Even though the constraints were present in the project were there still too many questions to be answered and therefore was the collaboration with DuoBad started. In the beginning my goal was to make one storage furniture for the bathroom, but it didn’t take much time before I realized that there was more than a furniture. That would explain my other constraints for the project. They were a way of protecting the valuable time that I wanted to get with the users and it all became over constraint. For an example I do feel that the hygiene and cleanliness should have been part of the project. It would have been interesting to see what the users’ reflections were concerning cleanliness, to see if that area could contribute to the project in another way and open up for interesting ideas.

Afterwards I feel that the collaboration was important for the project and I am glad that it turned out as good as I had hoped for. It was their experience of the industry that contributed the most, where we had discussions throughout the project. One of the hardest parts in the project was how to handle the workload, when I realized I wanted to do a storage furniture and hadn’t really thought about the basin and faucet. The project started with a goal of making a proposal for a storage furniture, but ended up with a storage furniture with basin and faucet. My way of handling this small surprise is showed in the project with the constraints of choosing a basin and faucet. Throughout the project constraints have been made when I felt that the workload became too large and threatened to take focus from the most important: capturing the users’ experiences and transform them into a product.

An obstacle was that I had estimated the workload wrong. The meetings with the users took far more time that I estimated in the beginning which affected the work. My first idea was to design my own basin and faucet, but during the home visits I realized that there would be a project itself to develop a faucet and another one for developing the basin. My focus was on the storage furniture and my decision became to work in the same way as DuoBad to maintain my focus. It felt as a smart choice at the time but it would have been more interesting to see the result if I had worked with the faucet and basin further on instead of stopping at the sketching phase. The gained experience from working more with the faucet and basin could have contributed to the project. At the same time it was interesting to work this way where I could match the experience I got from the users with the faucets
and basins that DuoBad’s collaborators have in their collections. For this project it felt as a good balance between the workload and outcome of the project where I felt that the result would reflect my focus. At the same time it felt strange to pick other designer’s products and combining them with my own design. With my background where I have mostly done everything from the beginning this was a new experience.

Not long after making the decision to work as DuoBad where another constraint made. It was my tendency of getting caught up with constructions that I wanted to get away from, my curiosity of how things are made and manufactured. This was something that I wanted to solve by dividing the project in two parts, conceptual and commercial. Now afterwards I do feel that the “commercial” part is too loose and doesn’t say much. But the reason behind was to help myself break free from the construction of the furniture, to focus on the storing and usage. It was a breaking point in the project for me when I felt the inspiration became more vivid. My thoughts regarding construction were still present, but because of the constraint I didn’t feel the need to solve the whole construction of the ideas. The constraint helped me to break free from my tendency which has been a problem for me in other projects and to work more on the usage and storing. I experienced the importance of constraining the project, but it’s a balance to not constrain it too much and for me it was on the borderline. It sometimes felt that I had made too many constraints but it helped me work more closely with the users.

Before the home visits preparations were made that would help me maintain a good collaboration with the users. I realized pretty fast during the meetings that the preparation didn’t help me as I had estimated, instead it limited me. As soon as I didn’t follow my preparations I felt the meetings became more interesting. When I used it the focus was on me and it felt as if I missed a lot of inputs from the users. With the preparation I got to focus on what to do and what subjects to discuss, which I experienced was not the need as soon as I had something visual to talk around. There was a significant difference from when I discussed the projects without any visual content and when we started the different methods of the home visits, for example when the users were trying to describe their routines during the post-it method. It was hard for them in the beginning but as soon as the post-it notes were introduced they got a visual map over their routines and it became hard to put an end to the discussions. It was the same with the contextual interviews when the users tried to describe other bathrooms they had experienced. It was hard for them to describe how their experience was but as soon as they started to use the bathroom as a discussion tool they managed to make me understand what they had experienced. During the interviews I feel that I was not
(mentally) present and that I could have activated the users more. I should have made them show more in the bathroom than just explaining in words, especially when I have seen the advantages of using something they can discuss around and point out to show when explaining. While conducting the interviews I did encounter what Bo Westerlund is writing about in his doctoral thesis about the users’ tendencies to hold back ideas.

“Normally they do not want to proceed to create articulated, particular proposals until they are certain they have ‘the solution’, an idea that will really work”.
(Westerlund 2009: Page 121).

This was something I experienced while conducting the contextual interviews. My solution to this problem was to make them think out loud in order to include me. Westerlund is also mentioning the importance of giving them support and guidance, to push them and make them feel the meaning of sharing their experience. As Holtzblatt and Jones would say about their work regarding the relationship with the users:

“Walking with people through their work place and focusing them on their concrete experiences produces concrete information” (Holtzblatt and Jones 1995: Page 243).

The material vision is a good example of how preparation can make it hard to gain experience from the users. With the set-up that I had which was a piece of paper with some columns and pictures of different materials, it was all doomed to fail. It showed me that too much preparation is not good for discussions. By preparation I do mean the kind that is visible for the users, as in this case were the papers. In some way it reflected that I only wanted short answers which wasn’t my purpose. The users’ interpretation of my intention was interesting but the material vision became useless for the project for the same reason.

“Traditional information collections practices do not seem to provide a context in which users can articulate their requirements in a form that helps...”
(Holtzblatt and Jones 1995: Page 243).

I can identify with what Holtzblatt and Jones describes after experiencing the result from the material vision and comparing it with the other parts of the home visits. When the context was provided the participation became more active and the users could reflect more openly, with a little help from me. Also when the context was provided the meetings become very effective and it became shorter sessions when explanations were minimal compared to the parts when more explanations were needed, such as the post-it methods.

The opposite effect was the meeting with the focus group where I had made a few basic preparations which wouldn’t be visible more than the paper
prototypes. The focus was only on describing the concepts and asking for their reflections and start discussions within the context of the bathroom. When comparing this with the result from material vision it is clear that it’s more likely to be a positive experience the more visual you are during the meetings. With the new users in the focus group it did not became as interesting as I wished for, since they had no experience from my project, which made me think of what the outcome would be if I had chosen users from the home visits to my focus group. The new users gave me “fresh eyes” on the project and contributed a lot but in another way than the other users could do. They shared their experience of how they interpret my project and with curiosity they contributed with interesting inputs. What the already introduced users would contribute is an interesting thought, if their inputs would be different from the new users. I think with their experience from the project they would examine the concepts much more and discussion would be based on the home visits. My conclusion is that instead of taking one step back to the beginning the already introduced users would have contributed more and helped me to instead take a step forward.

Study visits have always been a good way of gaining experience from the area you are working with, for me it was important to learn about the industry. But I wasn’t prepared for the experience I got from it. The more I learned about how the industry works two things became interesting to me; production and recycling. I got surprised about how little they worked with the environmental impact, which was my overall experience from the fair. They had a lot of information on how their production fulfilled the regulation for minimizing their impact on the environment, but it was very hard to find information regarding recycling. My overall experience from the study visits is that they work very little with the whole cycle of the products and focus a lot on the production and water consumption. This is great but for me it would be interesting to see more about what can be done with the products afterwards. For example to combine the bathroom industry with the furniture industry which has companies working with this part (companies such as Green Furniture Sweden16). They could benefit and inspire each other to work against a new way of making sustainable bathroom furniture.

During the study visits when I got interested in how the production and the recycling of bathroom furniture works were an idea developed; second use. After experiencing how the industry works and meeting people working in the industry the ideas starting to grow. Afterwards it is interesting to see how the study visits became the source of inspiration for the idea. For the project I presented my idea and left it at that stage because it wasn’t my goal with the project and I wanted to focus on the users. The second-use within bathroom area is already happening where people are trying to sell their old

16 http://www.greenfurniture.se/
furniture, but it will be interesting to see if there will be some companies working with this in the future. Many times I compare it to the furniture industry where this thinking is more usual than the bathroom industry and I strongly believe that they could share a lot of experience from each other in this topic and also in others.

After reflecting about the different parts in the project I feel satisfied with the result. But I was not completely satisfied with how the proposal was presented at the end. The making of the prototype is always hard and you never know what could happen. The gained experience from this would be how I handled the situation when I couldn´t get the prototype as planned. Afterwards I feel that I could have pushed it more and probably worked it out, but at the same time it did not feel as an option. Instead of jumping in to solve the problem on how to make the full scale prototype which was the goal, I did instead reflect about what was the most important part to show with my project. Which was the storing and usage, how my proposal helps the users during their bathroom routines. Even if the full scale model would have been done, it still wouldn´t show the most important parts of the project.

I feel with the result in my hands that I could have solved the problem by combining renderings with a more detailed prototype, where I could have done a scaled prototype that could show parts of the storing and complement it with renderings of the details and of how it works. With only renderings and a small model showing the form language it is too little for the beholder. I believe that people are visual and want to understand the result but to capture their interest you must have something that would get their attention.

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Appendix 1. Sketch phase one

I sketched down all the ideas that came to my mind when I thought about bathroom series, before starting the project.
Appendix 2. Sketch phase two

The project got a jumpstart after I had conducted the home visits and the sketching became very interesting because of the created understanding.
Appendix 3. ISH, messe frankfurt

“At the ISH, the world’s leading trade fair for the bathroom experience, building, energy, air-conditioning technology and renewable energies, everything revolves around energy and water, the two resources necessary for life. The ISH brings together two trade fairs under one roof: energy building and air-conditioning technology and the bathroom experience. Held every two years under this combination the ISH draws around 2,400 companies together onto a fully booked trade fair site (250,000 square metres) – including all market and technology leaders. This leading world trade fair has already been held for more than 50 years – more than 5 decades therefore that stand for growth, continuity and a successful trade fair concept. In short: for a half century of success.”

Taken from: http://ish.messefrankfurt.com/frankfurt/en/besucher/messeprofil.html
Appendix 4. Three concepts

A summary of the gained experience from the users, where all the ideas was spread over the three concepts.
Appendix 5. Sketch phase three

Some sketches from my search for the design of the furniture, after my decision to focus on the box shape.

Sketches that explains the final storage solutions for the series.
Appendix 6. The result, Miller