

Reflection

Lars Hammer
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Introduction

During my research several things went different than initially planned. Analyzing these differences could create a clearer image on why the research went the direction as it did. But mainly it is a tool to learn for future projects. There is a focus in this reflection on four different topics, which are the relationship between; *Research & Design*, *Graduation-lab & Subject*, *Preferred Methodology & Used Methodology* and at last the relationship between the *project and the Social Context*. Each of these topics will be analyzed and discussed below, where I reason why specific things were different than initially thought, and what I learned from these differences.

Research & Design

The relationship between research and design

The relationship between my research and design is dependable on the methodology of the project, this however, is influenced by many different elements. Elements like the motivation of the project, the kind of industry, the specific work ethic at my department and kind of company which is performing the research and design, all played a part in the course of the research. For example, when the motivation is creating aesthetical pleasing designs, the research will for example be more based on form-design. Or when the main motivation is to make a profit, the research will include more efficient and financial models.

As soon as I started at Keppel Verolme, one thing became clear almost immediately. There was a big difference in the design methodology used at the company, and the design methodology applied during my bachelor. The environment of Keppel did not match my previous experience at other (Architecture-) companies. This made the whole experience more complex, but a lot more interesting. The biggest methodology difference is that at the architecture bachelor, we are educated to design partly according from a perspective of aesthetics, after which the design gets adjusted to conform to specific parameters. While in the offshore industry you design from a perspective of high-efficiency, with very limited room for aesthetic-driven design. This resulted in a parametric based design, finding the best solution based on hard numbers and outcome. Regarding on your priorities, both methodologies could work really well. However, I am happy to have experienced them both in order to see the advantages and disadvantages of each.

During my research there were several times that this approach could get confusing. This was mainly when it was unclear when to actually stop the parametric research. I have found that applying clear boundaries and conditions are essential to overcome this problem. However, it was in a later stage of the research that I applied these boundaries and their importance became clear to me.

I have also that a few focus was lost during the research due to an not specific enough research plan. This in combination with the problem mentioned above meant that hundreds of simulations were done with not really satisfy-able results, which were later proven to be insignificant. In order to keep the research interesting, it could be proven beneficial if more of the things which I had learned in the bachelor and master where implemented when designing. However due to the massive amount of modelling and parameter testing, this did not happen.

It made me think about the preferred relationship between the research and design, especially in the offshore design.

The parametric driven design used in this research is of course highly efficient and therefore preferred to be used in many industries, and understandable so. However, there is one element in the parametric design method that is very hard to test and implement in the research. This element is the human factor. Which is in aesthetic driven design one of the main factors, for example; how do the people feel in this building, what is their experience? Aesthetics can greatly improve the indoor experience.

Now that the research is finished, my opinion is that in the offshore industry the designs could be more human-considerate. The current buildings work quite perfectly, and are very efficient. However, after spending quite some time inside one of these offshore accommodations, I have found that they are all very bland and boring, without many possibilities to personify the buildings, or have interesting surroundings/interiors. This is important especially considering the long amount of time people spent aboard and inside. Basically, only conforming to the thermal-comfort models of Fanger is not enough. This means that a combination of the parametric- driven design and human-driven design methods should be explored in future research.

Graduation Lab & Subject

The relationship between the theme of the graduation lab and the subject/case study chosen by the student within this framework (location/object).

The research is part of the Sustainable Design Graduation Studio, which is in Building Technology department, with three directions of interest; façade-design, climate-design and structural design. My main interest lies with façade design, which was also has a focus in my research. However, when signing up for the Keppel Verolme topic, it was known that climate would a part of this project, I was curious what I would learn about climate-design during this research.

The expectation I had when starting this project was a combination between the sustainable research-station of the Extreme-project and the more detailed façade element of the Bucky-lab studio. In hindsight this expectation was maybe unrealistic, or at least it was not fulfilled when approaching the end of my research.

The main reason for this was the difference between the industries of architecture and offshore design. I have been working mainly at the office in Rotterdam for four days a week. During this time, I was surrounded by offshore design engineers. They understandably had a different view of how the project should look then I initially imagined as an architecture student. With this it is meant that there was not so much designing involved, but more research and parametric research, with limited possibilities for new design, especially since the products were meant to be off the shelf. I knew I was in control of my research, so where I thought this was possible I have tried to implement the façade design into my graduation. However, there were some times where distinguishing between my priorities and the ones of the company was difficult.

This difference between industries has caused me to sometimes doubt design decisions. However the result eventually confirmed expectations of the research, which were mainly set by previous projects at the faculty of Architecture. Especially in the later part of the research where more designing of the system was involved.

The difference between the graduation-lab and the subject had a lot of advantages. The inexperience, the different industry, but even more the different way of researching, caused me to think more out of the box.

I have now seen the other side of the coin, which is a valuable experience and makes me not regret a single second of the last period.

One of the take-aways from this project was the experience at an actual company, where the functionality of what you design is of high priority. The prospects of actual future use of the design is highly motivational. This also meant that a lot more things should be considered in this project. Considering this, it meant that because I have been part of an actual company, I had to think of important design aspects which would not be considered at university, and got driven to do way more than I initially thought. From visiting real life study cases to contacting companies with my idea.

In conclusion; the difference between the studio and the actual graduation had its advantages and disadvantages. Where I lost time due to inexperience in the subject and industry, I achieved a lot of experience through interacting with topics which I have never worked with during my Bachelor and Master.

Preferred Methodology and Used Methodology

The relationship between the methodical line of approach of the graduation lab and the method chosen by the student in this framework.

As mentioned before in this reflection, there was a difference in methodology during the research and the methodology used other projects in the Bachelor and Master. It is important to have first read some literature which then influences the concept of the design. This concept will be prototyped and put to the test in order to find out many different advantages and disadvantages. These parameters will then form the final design.

In my current project I used a slightly different methodology. As well as in the conventional methodology, I read into the subject in order to get a better sight into the industry. After the P2 I also realized it was maybe way too soon to already start with some variants, since the research was still in its beginning phase. The real problem still had to be identified. E.g.; where are the heat losses, and what is the current situation. I then focused more on actually determining the problem for the P3. What parameters could be adjusted in order to change a more positive energy use, instead of limiting myself by an already imagined design. Only after testing the parameters, there would be enough confidence to come up with an actual working design.

So the methodologies were the initially the same, but changed over time in the project. It became clear that focusing too much on a design, which was not known to be usable, would only distract myself from the research. After the P3 it became clear that this was eventually not the right approach. Starting earlier on designing, could be more beneficial, since time was going fast. The time pressure on one side in order to provide a design in combination with the unfinished research on the other side greatly confused me. This could be avoided in the future when the boundaries and conditions would be more strictly determined and followed. As well as implementing a stricter planning.

The wider social context

The relationship between the project and the wider social context.

The goal of this thesis is providing a solution to an energy saving offshore accommodation. This builds on a progress of onshore buildings of the recent years. By implementing design solutions, mainly based on façade, it is possible to lower the heat gain from the sun in hot climates and reduce the heat loss in colder climates, lowering the total energy use and costs.

A few things I realized during my project. Where there is sustainability involved in the offshore industry, it is mainly to save costs. Many energy saving solutions are thus not implemented since these often unknown strategies could cost only more.

This means that the initial focus of the design should be sustainability masked as a cost saving ability. This could convince investors to pay interest on the product. The secondary focus should be changing regulations in order to create more energy sufficient offshore accommodation.

Conclusion

The relationship between research and design is dependable on the methodology of the project, this however, is influenced by many different elements. At architecture, we are educated to design according from a perspective of aesthetics. While in the offshore industry you design from a perspective of high-efficiency. The parametric driven design used in this thesis is of course highly efficient and therefore preferred to be used in many industries, and understandable so, but I think that in the offshore industry the designs should be more human-considerate, to open up for alternate designs which could improve the work environment.

The *relationship* between the graduation-lab and the subject is that while the initial focus of the lab lies with façade-design and climate-design; during the project some of this focus was lost, mainly because of the difference between the industries of architecture and offshore design, as well as to loose boundaries and conditions on my part. The difference between industries was also the cause of inexperience in the subject. But I do think this had a lot of advantages, since it opened up another world of design for me, which involved different researching methods and out of the box thinking.

When considering the methodology; there was a difference in methodology during the research and the methodology used mainly in our graduation lab. While I started of the same, the method changed over time in the project. It became clear that focusing too much on a design, which was not known to be usable, and would only distract myself from the research. For future designs I will apply stricter boundaries and conditions, as well as amore clear planning considering the end of research and start on my design.