Introduction

Because this reflection turned out a little longer than expected I will provide you the shortest and most fitting summary possible. The decision is yours whether you will go for the whole, but I deem the summary sufficient.

1 Summary of Reflection

Focus.
Picking Explore Lab

The semester before I started graduation I studied abroad. Therefore, the possibility of orientation on different master studios was limited. During the years preceding my graduation I developed an interest in the Explore Lab. The idea of completely developing the framework of your thesis project by yourself attracted me. I was (and am) convinced that this is an essential part of finishing your studies and becoming an architect, engineer or Master of Science.

However, I already knew beforehand that, given the amount of freedom, this would not be a very good studio for me. That is because, and it feels weird to say, I am a perfectionist. I identified the two following ways in which this mainly influences my design and research process.

Firstly, it expresses itself in nothing to do with something perfect at all: a reluctance in making decisions. The fear of having a decision fold out not as perfectly as hoped results in not making a decision at all. It muffles the ambition for the experiment, one of the vital ingredients of the design process. Often I find myself sitting motionless behind the drawing board or computer, procrastinating even the simplest of choices, most of which not relevant at all.

Secondly, it expresses itself in a lack of focus. The ambition of perfecting even the tiniest detail of a project leads to being all over the place. In design projects this often results in attention for and time spent on certain details that are most irrelevant. For example, if I were to design a bridge I would be able to spend ages at the type of paint used for the road markings – on the first day. My average final studio presentation is in state of trying to catch a train that left 5 minutes ago. Too much in too little time.

These two products of perfectionism form a horrible foundation for a design studio such as Explore Lab. But it also meant the biggest challenge.

There are two ways for (actually three, but I will not go into third one) how people end up at Explore Lab. To me, one is wrong and one is right. The wrong way was my way: first picking Explore
Lab, than picking a fascination. The right way is having been fascinated by something for a longer time, as a result of one or multiple encounters during your study, and picking it as your graduation project. I think this is the way how Explore Lab once was conceived and how it should be used. The other way, the supposedly wrong way, can easily lead to generously surpassing the amount of time attributed to graduation, partly due to changing topics and insecurity. The best way (which is not the third way) is the way I learned of during my semester abroad. I heard the students talk of a course called thesis prep. It consisted of weekly meetings with a thesis advisor that were organized in a way to slowly introduce you to the idea of the graduation thesis and to slowly start developing concepts for it. The slowly part was especially good about it: it allowed you to develop your ideas over time, to let them ripe. Obviously you can do the same in Delft, but from Explore Lab or academics a route like this, that would be best for everyone, is not supported or stimulated. Explore Lab lets you dive into your idea full-time right from the beginning, where it would be more logical to have your idea develop in the back of your head while doing other things.

During my semester abroad I spend a considerable amount of time, after deciding to go for Explore Lab, thinking about my possible fascination and application. I reread some texts I wrote during that time, the fall of 2013, and I noticed that I sure was all over the place. From digital fabrication of pop up pavilions, to an in all aspects fully autonomic villages in the middle of an urban context and from places completely stripped from digital capacities to high rise buildings without elevators. The potential plans ran across the complete scope of what architecture could be and could not be, to end up with a decision highly influenced by our time: the layer of digital connectedness invisibly covering our lives, built environment and hence, architecture. The last one was only my assumption. However, this topic was merely a general fascination than it was a fascination resulting from architecture. I often thought, what if I end up with something not architectural at all?

**Focus, Framework and Feedback**

Here, I would like to introduce three things of general importance to science, of special importance to an explore lab student and of exceptional importance to me. All three of which completely failed during my first of three research endeavors (my fascination
of the encounter between digital and architectural space) and strongly relate to the development of the second (education) and the third (beyond material sustainability), successful, endeavor.

One. I connected my fascination to all potential problems and challenges out there, unwilling to direct my attention to one or two topics and excluding others. Although I had heard of many previous students to not only focus, but to go beyond focus, I seemed not to know (or not wanting to know) how to turn this advice into practical actions. The problems and challenges being dealt with by the average Explore Lab student are comparable to the agenda of the complete task force of the United Nations. That makes life quite hard for an average Explore Lab student, especially when taking in mind the limitation to architectural means we have for solving these problems.

Two. Hypotheses and frameworks, and the lack thereof. There is no hypothesis or framework that can deal with the endlessness of an Explore Lab student’s fascination. But if you want to do science you cannot do without. Obviously, I knew this way before hand – I think it was somewhere at the beginning of high school that the term hypothesis was introduced to me – but to apply it in practice does not always comply with the ambition to include all relevant passions and possible topics in your diploma project. I learned it the hard way, but, in fact, I really learned it. My act of research consisted of reading. And more reading. And browsing. And more reading. And more browsing. And making summaries. And drawing irrelevant conclusions. Making irrelevant diagrams of conclusions of summaries. Making even more irrelevant drawings of diagrams of conclusions of summaries. And after all that, back to more reading and start the cycle again (later, I will refer to his type of working when reflecting on my design process). I lacked any boundaries, frameworks or hypotheses to reflect any new found information on, which rendered all found information pretty useless. After three tries (the digital fascination turned into an educational fascination, which in the end changed to a sustainable fascination) I hit strike. With Peter Luscuere as a new research mentor I finally managed to discard of all things unnecessary and irrelevant and focus on things that mattered. Nevertheless still with a package a little too broad, it felt truly wonderful. Allowing yourself not having to think about everything. To purposely exclude matters from your area of focus. It felt freeing. I learned that within the scope of a small focus, there can be as much diversity as for a large focus.
This is a perfect place for slight detour on my final research process, before returning to you with the third thing of general importance.

Although the focus did appear at the end, I could only define my methodology retroactively. Due to the lack of familiarity with the field of sustainability, I first did a lot of reading (again). Though I did develop a framework during this reading, it was unwise to work like this. Even of a topic that you know little of, you can still imagine the main problems and develop a framework using logical thinking. And if these assumptions might appear to be untrue, they will still help you understand the topic in a better and faster way. You can compare the information and knowledge you absorb against your preceding statement and, if needed, reposition the statement. It allows you to continuously redefine boundaries and shaping the framework. Lacking a statement, or a focus, releases the boundaries and lets you roam freely, research without an end, without a goal.

However. The framework slowly shaped itself during the literature review and I developed several assumptions and guidelines on applying a beyond material sustainability approach to a design process. By sheer luck and coincidence, as part of my student assistant duties, I became involved in a Circularity Workshop organized by Bob Geldermans. Retroactively, I could define this as the part of the research where I tested my assumptions in a wider area of professionals and academics. This appeared to be a boost of my confidence (and research!), as most assumptions, approaches and design guidelines were found to be fitting. The workshops where a vital and logical ingredient of my research. Retroactively my research can be divided into four stages: (1) literature review, (2) development of assumptions and guidelines, (3) feedback by academics and professionals, (4) application to the design part of the graduation.

Back to the story.

Three. Perseverance (and the importance of the perspective of multiple others). I changed topics twice. I lacked perseverance the first time, by changing, I showed perseverance the second time, by changing. I was (and am) truly passionate about my initial fascination, digital vs. physical space. I know that other people are truly passionate about this topic as well. I also know that some other people are not passionate about this topic at all. My first
encounter with someone not passionate at all, or to be more
precise, someone highly critical of the relation between digital and
physical space, was fatal. Fatal for three reasons: a lack of
perseverance (and, perhaps, confidence), a lack of other people’s
perspectives and, as already introduced above, a lack of scientific
focus. Naturally, all three are related. The scientific focus could
have been developed by talking to other people, which could in
turn have boosted my confidence. However, perfectionism
blocked the way. I had already learned that good examples of the
influence of the digital world to the built environment were
limited – this made me fear a hypothesis, as I was not prepared to
subdue to the possibility of, what to me seemed as, failure. But.
What I should have taken in mind is that we can also learn if
something appears not to be true, if a hypothesis is confirmed to
be untrue. Also then, we create knowledge and do science. An
elemental thought, but easy to miss.

I am especially glad to look back on my process and to think: if I
would do it again, I would do it in a completely different way.
That means that I have truly learned. Yet again, I know for sure
that I will again, as always, lose myself in trying to compress too
many things in too little a package. But, less than before. I will
know how to better deal with my perfectionism, how to
experiment and to accept that things cannot be perfect right from
the start. I will know the importance of having many different
views influence the development of a scientific framework and
hypothesis. I will know that these boundaries can be redefined
along the way, only to become definite when adding the finishing
touch to your report design and to become undefined again when
at the start of the next project. I will know of the boundaries I
have to create for a uncluttered literature study. But, most
importantly, I will know that I have to cut down right to the core
if I want to deliver something relevant.

**Beyond material sustainability**

As already stated above, the topic of my finished research was
beyond material sustainability. It integrates relevant and actual
themes of sustainability, moving beyond an energy focused
approach towards a built environment based on circular ideas that
resonate with the earth’s limited amount of resources. Currently
sustainable thinking is at a turning point, moving from less bad
and minimal use (efficiency) towards more good and productivity
(effectivity). Within this framework, focused is upon the material
aspect of the built environment. Connecting material cycles through reuse and recycling, and having materials add to a healthy environment, instead of being one of the sources of, for example, the sick building syndrome and environmental pollution through landfills. We need to increasingly see and treat materials not as something definite (waste, landfill), but as something part of an endless cycle – to use the somewhat cliché and well-known Cradle to Cradle phrase: waste equals food. Partly this is a change of mindset, from the top of politics to the end-user, partly this is a change of technological infrastructure, partly this a design issue and partly this is a new types of business model and partly this is already happening. In this field, academics and the professional world have an interesting relation. Where academics see a complete new ideal world, with non-existent waste streams, economic value is already created at the other end. Material shortages, taxes on waste and the increasing importance of toxicity and related health issues already make it financially sound to recycle and be more conscious of material use. The topic is closely related to the currently trending idea of the Circular Economy. Based on previous sustainability ideals, but moving beyond. Minimal material use would be sustainable. However, the Circular Economy sees value in material use, so why minimize it? It creates work, it lets money flow and as long as it is produced with renewable energy and with the 100% possibility of recycling and reuse – why minimize it? Just one of the examples in how the paradigms of Circular Economy, Cradle to Cradle and Beyond Sustainability differ from previous sustainable ideals.

The relationship between research and design

In the design case the aspect of material circularity and performance is connected to its function as facilitator of activity. We live in a turbulent society with changing needs, especially around crowded urban areas like the design location in The Hague. Therefore, it is essential to resonate essential use changes with a sustainable material strategy. Both need a possibility for adaptability, disassembly and reuse, so why not combine them?

Applying the defined material strategy into the design process mostly consists of facilitating materials to, according to their specific characteristics and application, move into and out of the building. The main goal is to have them in a state of value when their use has passed – while doing no harm and preferably good along the way. The actual act of reuse or recycling is beyond the
The design process

When I started designing, really designing, it was almost one year since my last academic design project and the first time ever I was going to do a retrofit. Quite a challenge. I would like to address (shortly, this thing is getting out of hand) one idea, referring back to the way I researched.

I generally work in this way: I draw, I explore the world wide web, magazines and books for inspiration, I sketch, I think, I write, I brainstorm, I analyze, I read, all without any specific strategy. At some point, I conceive one or several idea(s) and if I am still content after a short exploration, I will use one or a combination of these as a vision to develop the project. This process lacks a rational or strategy and is characterized by insecurity, as you do not know when and if the ideas come.

This approach works well in a design challenge without many restrictions. An idea or a story is leading for its development. But, as I experienced, a retrofit is slightly different – especially having to subdue to a special material strategy. You need to work the other way around: you need to develop the project consistently and via a strategy, without too much trusting on so-called epiphanies. It was not until late in the design process that I got control over this strategy. I am constantly asking myself the following questions and deriving the steps I need to take and drawings I need to make:

> what do I want to know?
> why do I want to know?
> how can I know?

Just like in research, you need a framework (the answers to these questions), before doing things – or else they become irrelevant and dependent on the serendipity of ideas. Today, I wondered how a certain balcony should look. Previously, I would have looked up different images and would have chosen one that looked good, only to retroactively project a certain strategy – usually out of sheer frustration resulting out of a lack of argumention.

Today why? was my first question.
Because it would let me define the story of the building.
Because it would give me arguments for defining other parts of
the building. Because it would let my building come to life. But
how? I needed to define what my balcony was. What position in
hierarchy it had in the story of my building. How it related to
similar artefacts in and around the same context: the atrium. How
it related to similar artefacts with the similar functions, such as
loggias, terraces and the porticos. How it relates to its direct
context, what facilities should it have? How would people interact
with it? And lastly, how would it relate to the material strategy and
what should become of it at its end-of-use? All questions that will
hopefully result in a proper foundation for not only a design of
the balcony, but a story of the balcony.

With this, I would very much like to conclude this not so small
reflection of my graduation. I think I gave a proper indication of
what I have learned (so far) and how I can use this for the future.