

08 REFLECTION

During the P4 fase a reflection about the graduation process is written. In this part personal, product, process and planning reflection is discussed.

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8.1 PERSONAL REFLECTION

Starting with HBO Building Engineering, a practical study, already brought me closer to sustainability. Nowadays there is a strong focus on sustainability in class and projects because of the current economical state. In almost every newsletter every day, an article is written about the environmental impact or the consequences of temperatures rising. Last summer I visited Bali, a beautiful island in Indonesia. Unfortunately, it was also one of the most polluted areas I have ever visited during my travels. This made me realise that we are demolishing Earth and unfortunately until now we don't have another Earth to visit. At that moment, I knew I wanted to do research in the field of sustainability.

The motivation for my research on the topic of the sustainability was the change in law, by which offices may no longer have an energy label lower than C from 2023 onwards. This will have a huge impact on the future office supply. Some offices will be no longer be in use, but most of them will need to become more sustainable. Until now, a lot of research has been on this topic, but not yet on what such a transition looks like. Is the building actually as sustainable as assumed? Or, if not, how can it fulfil the expectations?

In the beginning phase of the thesis work I determined my personal study goals. The achievements are divided into technical achievements and personal achievements such as becoming more aware of small sustainable changes, improving my English academic writing and research skills and expansion of my professional network. During the research, the progress and developments of the previously set achievements were reflected. It is interesting to see that unconsciously I have grown a lot during this graduation process in all areas and the established goals were met.

Within one year of time, it was my goal to achieve a result I was proud of. When the P4 period came to an end, that goal came within grasp. It is an end product, which I tell everyone about with pride. This chapter the product, process and planning of this report will be reflected.

8.2 RESEARCH PRODUCT

Before the P2 phase I imagined that this report contained more proven research, during this process I realised that time is the biggest enemy. Wanting to do too much would not reach a realistic goal, wanting not enough would not be satisfactory for a master thesis. The project delivered for the P5 phase is the product I am 100% proud of. There is a moment in time you need to say stop and this is that moment.

The structure of the research is well thought out with incorporating the theoretical framework into the chapters. All the information combined in each chapter gives an overview of all the available information for that specific topic, which makes the research easier to read and analyse.

Especially the product of this research was not what I expected in the beginning. My expectation was that a method or strategy could be developed which shows companies what the possible impact was with implementing these changes and changing the behaviour of their users. At the end, this was not realistic. The reality was that the impact of these measures is too low. The significant result I expected in the beginning was not the end result. Other unexpected aspects came to light during the interviews and delphi panels. Especially the involvement of government and how law should be used to advantage in order to make people and companies more aware of the current sustainability problems in the world.

Not all the conclusions were as I expected in the beginning, this was mainly because due to time pressure. The factors and theories needed based on literature were needed to succeed the interviews & surveys. During this process, it is noticed that some factors were not included in this part and thereby also not 100% reliable. Because of the second round for the delphi panels these factors were discussed by the experts and users.

Overall, I am happy with the structure of the research, but the results of the main question were not what I anticipated. This was because of the fact that it does not have a high impact on the environment, luckily other factors such as law, communication and the energy performance gap have.

8.3 RESEARCH PROCESS

The process of this research did not go as planned. The expectation of enthusiastic people to cooperate were higher than the actual participating people during the research. At the end, a lot of experts and companies did not have time or the resources to cooperate. So, I am more grateful to the companies and people who did help me during this period.

The research exists out of 4 different research methods; literature, delphi panel's, interviews and cases. All these methods lead to different processing methods, discovering these processes took more time than originally anticipated. Using the four different methods created a wide range of interpretations and factors which were involved during this research. By using all of these methods the user, facility manager, experts and literature would be included in the results. All these stakeholders led to different opinions from different viewpoints, which made the research more reliable by looking at it from different perspectives.

8.4 RESEARCH PLANNING

Even with the setback of getting less resources and information from companies, the planning of the project did go as planned. Looking back at the planning I think it was aimed to high. The writing phase at the end was not large which gave a lot of pressure on analysing the retrieved data. Maybe the delphi panel surveys could have been conducted earlier on but the segments for in the surveys where not developed yet so it would have been testing information which was not available yet.

Also, the time period between the P3 presentation and the P4 deadline was shorter than originally expected, due to the fact that my P2 deadline was later on. Which gave a high pressure on the last time period.

8.5 FEEDBACK

Originally a survey with a large scale of users was planned, after the P3 report my mentors advised me to look into this method because it would take a lot of time and the added value of this survey was minimal. After developing a plan on what information I wanted to retrieve from this part of the research, a delphi user and delphi expert panel where developed. These methods would retrieve quantitative information from users and experts.

Every other week I would meet with my first and/or second mentor, whenever I had questions or wanted to brainstorm about my topic both mentors were there to do so. The feedback I got from them was taken into consideration and where I felt it would add value, applied. Sometimes it was just developing a new way of thinking to the project and process. The feedback I got from them was in the form of remarks. Most of the feedback given was there to develop my work method and the way I would think about the topic.

During this journey, I learned a lot about doing research, writing a report, planning, setbacks and myself. My life motto is "aim high" but during this time period I sometimes aimed to high which was counterproductive at times.

8.6 MASTER TRACK

Sustainability is a topic that is an integral part of modern society. Global warming is everywhere around us and it is positive that people realize that change needs to be made now. My master track management in the built environment has a direct relation to this topic due to the measures that are built environmental related and the user that has a relation to the management part. The studio of choice was real estate management, looking back this study is not a fit for my topic. This topic is partly technical and partly social which does not meet any study of the MBE track. It is a topic that goes beyond the studies and fits partly within the master. By challenging myself, I used the skills I learned the last three years and broadened my knowledge about social experiments such as behavioural change implementation.