

Reflection

This chapter is a reflection on the work of the graduation studio Advanced Housing Design, which is part of the Master's track Architecture of the MSC Architecture, Urbanism & Building Sciences at TU Delft. The approach to research and design, as well as the interaction between the two, will be explained based on the following questions:

1. What is the relation between your graduation project topic, your master track (Ar, Ur, BT, LA, MBE), and your master programme (MSc AUBS)?
2. How did your research influence your design/recommendations and how did the design/recommendations influence your research?
3. How do you assess the value of your way of working (your approach, your used methods, used methodology)?
4. How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?
5. How do you assess the value of the transferability of your project results?

Relation between graduation project topic, master track, and master programme

My graduation topic was inspired by my interest in environmental psychology, the impact of the built environment on the individual, and the relationship between the natural environment and humans. Although I have always been interested in the integration of nature in an architectural design, this interest was intensified during the COVID-19 pandemic. In this period of uncertainty, isolated in my post-war apartment, I experienced the importance of the proximity of nature to the living environment and how it can actually contribute to a person's health, both mental and physical. The positive impact of this personal experience inspired me to deepen my knowledge of how integrating natural elements into the built environment can contribute to creating a healthier living environment.

As the main subject of the design studio Advanced Housing Design, it investigates the housing shortage and looks for design solutions, including finding densification strategies in the post-war neighbourhood of Groot-IJsselmonde in the outskirts of the Dutch city of Rotterdam. Focusing on the aspect of the integration of nature in densification strategies to improve the living quality of an existing neighbourhood by enhancing the connection between both the social and natural environment, this research aims to find new strategies to cope with the current housing crisis as well as to find integrative solutions that would provide sufficient space for nature in the built environment. As this research combines research and design and the topic includes social, ecological and economic matters, it corresponds to the most important aspects of the master program MSc AUBS and the track Architecture.

The Interplay between Research and Design – Learning to Trust the Journey into the Unknown

The more specific focus on how the integration of biophilic design into the design of intermediate space can enhance a relationship with nature, and in turn support social cohesion, gradually emerged. While exploring the site of Groot-IJsselmonde, I discovered that the integration of nature and the relationship between nature and man was also an essential element of Ebenezer Howard's philosophy, the idea of the garden city, a fundamental design principle of the initial urban plan of Groot-IJsselmonde. This provided an opportunity to conduct a holistic approach in which I was able not only to consider the

relationship between the natural and built environment, but also to link this to the initial design thinking and the history of this place. This allowed me to combine and compare new insights from the biophilic design concept with the ideas of the historical garden city concept.

However, after determining the main theme, I felt I needed a more specific focus. Whereas this created a degree of uncertainty during the process, I discovered that being more open-minded in this exploration provided more profound insights and helped me to draw more specific and relevant conclusions. By combining observations of the current situation and interviews with residents of Groot-IJsselmonde, as well as historical research on the garden city concept, I found that the integration of the importance of nature in the intermediate space to enhance the connection between the individual and the social environment could lead to more specific and innovative findings.

In addition, the result of studying the analysis of the neighbourhood and the historical developments at different scales allowed me to gain a better understanding of which scale was of greatest benefit to my design, while also understanding what strategies could be applied at all scales and the impact of certain decisions made at one scale on the other. In this way, I discovered that the various philosophies and principles integrated in Groot-IJsselmonde were mainly conceived at the level of urban planning, but lacked the design of the intermediate space at the smaller scale, between the individual home and the collective or public space. While I already intuitively felt that this scale was the most important one to focus on, the literature review confirmed that it is in fact this space, on a smaller scale, that is also of great importance for the larger purpose. It is the space that reflects 'the times' - attitudes towards nature and various trends in society. It is the place that not only contributes to the character and identity of the whole, forms the boundary between interior and exterior, but also helps to create a sense of community.

During the graduation process, my tutors mentioned that it might be more efficient and helpful for me to conduct more specific research by focusing on a specific target group. However, I felt that focusing on one target group alone would limit the versatility and comprehensiveness of the research. Also because the demographic data shows that the current inhabitants of Groot-IJsselmonde are very diverse. In other words, by focusing on one target group, I would exclude certain individuals. For this reason, I decided to focus more on inclusivity and to emphasise the characteristics in the needs of the different target groups by focusing on the design for the individual. This approach is also in line with the principle of biophilic design, which seeks to design spaces that take into account natural, instinctive, human behaviours and tendencies that are naturally long-lasting and do not tend to evolve or change, and therefore also aim for social sustainability. While taking this approach, I am also aware that defining a specific target group could have led to more specific strategies. For example, I could have been more specific about the different needs of different age groups and how spaces could have responded to these needs.

Overall, learning to trust the process and presenting unfinished work has been a challenge for me, both in terms of research and design. At times, I have overcomplicated things or felt the urge to do more research to strengthen my findings. However, my mentors have been supportive and have made me realize that I had often already done much more and could explain my findings better than I felt I could. I have come to the realisation that it is more important to have a starting point and to present at least some information, rather than to keep on collecting new information. This has also made me realise that I have spent too much time finding new information rather than summarising and making connections between the information I already collected. Whilst I learnt a lot of new things in the process, I ended up spending more time researching than I probably should have, time that I could have used more effectively to develop my design further.

In case of my individual design process, I've learned to follow my own path and use the specific strategies that work for me. I found it difficult to express the ideas I had in mind on paper. The tutors noticed this along the way and encouraged me to use my working method of making hand sketches and sketch models, also because this is a great way to communicate my thoughts. Whereas at first I found it difficult to show a sketch at all because it wouldn't be 'pretty enough', now I even use my sketches as a presentation tool. Now, I rather see it as an expression of my personal character and identity.

Nevertheless, this comprehensive and methodological approach did not make me run away from new challenges and I discovered that I actually like to interact with residents and be able to bring that personal 'touch' into the design. Especially when I visited the intermediate garden 'Oeverloos', I felt inspired to use the intermediate space and the integration of natural elements for social connection.

In terms of the precedent studies, I think it would have been more useful to analyse several cases less thoroughly. After analysing three cases at the scale of individual dwellings, I realised that the strategies implemented were all quite similar. Yet, before I began the research and the selection of my cases, I felt that I still had a limited understanding of the factors that actually made a project biophilic. This became more apparent as the study progressed and I had done more analysis. If I started again now, I would have a better idea of what to look for and would be able to do the analysis in a more focused and efficient way.

Although my original aim was to develop a toolbox that would be widely applicable to post-war neighbourhoods, I soon came to the realisation that the needs and challenges of each neighbourhood are unique. This is partly influenced by the variability in the design and urban planning of these neighbourhoods in practice, as well as the influence of the diversity of residents. Nevertheless, I observed a pattern that has been found in many post-war neighbourhoods that is in many cases consistent, which is the lack of an integrated intermediate space between the private homes and the street. Meaning that, although my toolbox is specifically focused on the location of Groot-IJsselmonde, certain strategies can also be applied in other places. Therefore, my findings include strategies that are more broadly applicable and can be instrumental in strengthening the relationship between people and both their natural and social environment, like enhancing biodiversity, including natural materials, strategies to implement the prospect and refuge theory, and so on.

As a result, I have come to the conclusion that although the specific needs and challenges of each neighbourhood may vary, there still exist general principles that can be applied to improve liveability and connection with nature, not only in Groot-IJsselmonde, but also in other post-war neighbourhoods or urban areas in general.