

Reflection

What is the relation between your graduation project topic, your master track (A, U, BT, LA, MBE), and your master programme (MSc AUBS)?

The relationship with the master track Building Technology focuses on the aspects of thermal comfort and the potential energy savings it can deliver within building services engineering by using localized climatization within buildings. The identified product solution operates on a smaller scale than typically found within building technology. It operates at a personal level that makes it more furniture based in with that related to interior architecture. But, it contributes to the bigger picture, namely the entire climate management of open-plan offices.

How did your research influence your design/recommendations and how did the design/recommendations influence your research?

The research fills the knowledge gap related to understanding users' experiences and expectations regarding personalised ventilation. Interviews were conducted with people working in open-plan offices as well as with experts. They were queried on aspects of performance, control, and robustness of the design. In conjunction with the literature, this led to a framework in the form of design drivers, an ergonomic manual and design workflow. Adjustments were made to the design workflow when I started working with the framework myself. That's how designing influenced the final part of the research. However, the major design decisions are still all based on literature and research. This has influenced the eventual positioning of the application, the functionalities the interface should encompass, and the design's robustness requirements.

How do you assess the value of your way of working (your approach, your used methods, used methodology)?

My approach is based on research that needed validation and specification. In the domains of performance, control, and robustness, criteria were known. However, what these entailed for precisely a personal environmental control system based on elevated airspeed was still unknown. Additionally, a conceptual model was utilized, wherein users' experiences and expectations played a key role. These experiences and expectations were not documented. I addressed this through literature review and interviews. From these interviews, various criteria and a hierarchy emerged. Together with the literature, this forms the design framework of this study. Subsequently, methods such as morphological chart methods and Harris Profile were used for systematic design. From the built environment, we are accustomed to working from the bigger picture to the smaller picture and occasionally zooming in and out. This method enables the architectural designer to come up with multiple variants from the beginning and constantly examine them. Additionally, a designer often starts designing based on their own experiences. Now, these experiences are actually based on what the end-user truly wants. That makes the value much greater and the chances of success higher.

How do you assess the academic and societal value, scope and implication of your graduation project, including ethical aspects?

I aim to uphold the academic value within architecture, both in terms of excellence and social responsibility. In the field, we are seeking more sustainable and human-centered solutions as current climate control tends to focus on the 'average person'. Since there is no such thing as an average person, the environment should be designed to accommodate diversity. Academically, I strive to add value by contributing to the literature. Specifically, I have mapped out the experiences and expectations of users of office buildings in summer situations with increased airflow. Qualitative data has been translated into quantitative information that may

also be relevant to other researchers and designers. Responses are only applicable if one desires to use the same means, but the methodology can be adopted and applied to other aspects. Furthermore, I demonstrate that in architectural situations, alternative design and evaluation strategies are efficient and effective.

The social value lies in addressing a potential problem for many office workers. Interviews highlighted that overheating is not merely a theoretical concern but a practical issue. Moreover, it's recognized that climatological homogeneity doesn't meet the needs and expectations of users, and these methods/designs aim to address this discrepancy.

How do you assess the value of the transferability of your project results?

There has been extensive research on the effective management of microclimate in and around a workplace. However, there are still few products, especially for summer situations, that can be deployed on a large scale to actually achieve this in the built environment. The information in this research provides a framework to consider when implementing such devices in the built environment. While the foundation lies in the built environment, there are certainly opportunities for other researchers to build on this. Interaction could be further explored or improved, for example, by involving industrial designers. Additionally, the energy efficiency or effectiveness of wind dispersion could be further researched. A larger-scale trial could also reveal how effective this product would be in practice.

Would working with a company already involved in these personal environment control systems have accelerated your process and achieved a better end result?

Various experts were interviewed. In hindsight, it might have been more beneficial to contact a creator/manufacturer who already implements these in furniture earlier. Because then the exploration process would be a bit faster, which would save some time at the end to possibly further develop your research results. However, I don't think it would have made the research better or advanced the academic field. A company often operates within a certain framework that you would then need to adhere to, which, in my opinion, wouldn't have yielded these results. That's because I've had the opportunity within this thesis to look at things a bit more broadly, which has allowed me to take a helicopter view of the field and discover certain items that I wouldn't have otherwise seen. You wouldn't have had a moment of, 'hey, but why are we actually doing this?' and thus, it might have been different.

Has this research prompted you to adopt a different working method?

Often, when designing, you receive a list of requirements and start designing based on that. What's really different is that I've now fundamentally questioned: does it all really need to be there? The industry agrees that personal environment control systems are a way to operate within adaptive comfort zones, and many people would immediately start designing items that anticipate this and incorporate all sorts of functions based on themselves and the literature. In this research, I take a step back and present the whole picture, fundamentally identifying which options should and should not be included for such an application. Initially, I would have also started designing right away, but taking a step back and fundamentally examining what is and isn't necessary makes it more effective and efficient.