

REFLECTION

In this reflection, we look back at the entire learning process during the research. First of all, there is a review on the quality of the used method. This is followed by a review on the quality of the results. After, a personal reflection about the lessons learnt is given. The reflection concludes with a progress description of each period.

1. Methodology

The method used in this research is the discrete choice experiment (DCE) by use of discrete choice sets (vignettes). This method was chosen since this method is based on evidence-based design. In addition, this method supports doing research from a valuation and environmental perspective. The research focused on measuring which physical office design features employees prefer during the collaboration and individual concentration work activities in order to positively stimulate acoustic and visual privacy. Using the language of architects (visualisation) seemed to be suitable for this investigation. Indeed, this method worked well for this investigation. If work needs to be done by an interior architect, it is crucial to understand how he works. For this reason, the DCE by using discrete choice sets (vignettes) was appropriate. The 3D renders that were presented to the respondents in a questionnaire helped to prevent that respondents thought differently about an interior office environment. This increased the quality of the method. However, it turned out that for some respondents it was not clear how they had to interpret the vignettes. This was probably due to the fact that the noise reduction attribute dominated. Therefore, the method might have worked better if the research had only focused on visual impulses by presenting the vignettes, instead of taking into consideration acoustic impulses as well by adding noise. Even though this attribute might have dominated the results, I do not think this would have caused any harm because there were other levels of significant attributes showing the impact on acoustic and visual privacy. For more explanation, see the report p. 69, p. 77 and p. 98.

The report contains the measure of how effects are generalized. The applicability is a point of discussion within scientific research reports. Hence, this can be seen in the discussion, see report, p. 92 - 98. Below is given a short review of the quality of the most important steps in the DCE.

1.1. Literature review

First of all, the literature study was focused on finding the physical office design features that have an impact on the satisfaction and wellbeing of office employees. Summarizing the most appropriate literature could have been more efficient if a short summary of each article was made by typing instead of doing this by hand writing. This way of summarising would have been very useful as well for marking the research purpose, findings, and other important parts. In retrospect, I sometimes forgot what each author had said since I was not able to look into the printed versions. In particular, at the end of the research process this would have been very useful.

My personal work experience as an office employee during the research internship yielded new input for the longlist of design features. Colleagues pointed out that in some office environments employees used exercise balls and bikes. Additionally, research of Nelson, Boné and Oosting (2017) towards healthy offices, stated that exercise balls and bikes in office environments are experienced as pleasant. This is why these design features were added into the longlist for the professional ranking.

In addition, one of the important thing is that my insight has changed under the influence of literature (Maher & Von Hippel, 2005; Yildirim et al., 2007) and conversation design, which pointed out that partitions and table dividers seemed to be an important aspect for not only the level of visual privacy but for acoustic privacy while working as well. Conversations with the head of design during the internship suggested that the interior designers use absorbing materials for the partitions and table dividers to reduce the level of noise in the office. Since only the impact of partitions and table dividers on employees' visual privacy was described first, the impact on acoustic privacy of employees was added. I could not imagine having no partitions or table dividers at my workplace and thus being distracted by my colleagues around me all day. This is why the table dividers and partitions attributes were added separately to the longlist of physical design features for the professional ranking.

1.2. Professional ranking

The main observation of the design features ranking by the professionals was that all employees started the ranking with one of the architectural conditions as being most important. Since I knew before the ranking interviews that the architectural conditions would not be taken into account in the DCE, it would have been better if these had been left out before the ranking. This could have led the respondents to focus better on less design features during the ranking and this might have led to a more specific ranking outcome.

1.3. Experimental design

The design of the experiment was done by use of JMP, whereby the choice sets design script was made. It was feasible to automate render layers in Maya by using the script that generates the choice set design. In retrospect this was good as no mistakes could have been made due to the fact that the render layers automatically appeared. However, time was wasted since it took a great deal of effort to make a script without any mistakes. Even when working out the most preferred and most not preferred situations at the end of the graduation process, problems with the script appeared that needed to be resolved to be able to render. Nevertheless, the automated render layers were a major contribution to DCE with vignettes.

One learning point during the experimental design was how to present the vignettes. A few respondents mentioned that it was not clear how to 'read' the vignettes. It seems that the presentation of the vignettes towards the respondents could have been better. Therefore, the most preferred and most not preferred render situations are combined together with a white space in between the four renders of the vignette. This was done by using an online photo application (photojoiner, 2018).

I discovered even more of my passion for interior design from learning Maya and developing the 3D model by designing several office environments. After my studies, I will take other decisions and steps because of applying the DCE method.

1.4. Statistical analysis

The statistical analysis of the DCE was done by use of the statistical application software SPSS and SAS. The additional respondents, the back-office hospital employees, seemed to be crucial to be able to analyse the data. The online questionnaire comprised several versions. Each respondent filled in a version, which made it possible to obtain enough random data. This contributed to the quality of the obtained outcomes.

1.5. Application method in other fields

This method could be used in other fields, for instance, in the development or project management of an urban area development or a new dwelling neighbourhood project. The method could be applied by questioning the future residents about their preferences regarding the neighborhood or urban area of their new build dwelling. By doing so, future residents' input could be taken into consideration and a new built environment would be created with preferences of the future residents. Bringing wishes and desires of different neighbours together can improve the building process and contribute to an improved social cohesion. In addition, it can improve the design phase, since it would be easier for parties, such as the municipality, project developers and urban planners, to make the right decisions. By letting future neighbours take part into the building process, the outcome of the new built neighbourhood would improve, since the satisfaction of all parties (the developers, the urban planners and the neighbours) increases. However, it is important to gain the right balance between the input of the neighbours and the development intentions of the parties. Furthermore, other assumptions for further research, for instance the possibilities for VR (virtual reality) can be seen in the recommendations in the report, p. 101.

2. Research results

2.1. Attention for acoustic and visual privacy

The basic need for acoustic and visual privacy is crucial in current office environments. In practice, the attention paid to this in the design and building sector of office environments is still underestimated, as has been shown during the research internship. The personal experience, as well as the outcomes present the preferred situation of having partitions during both work activities and having table dividers during individual concentration. However, at the graduation company, not all the interior design architects pointed out that table dividers are important, since according to them this decreases communication. However, the respondents seemed to prefer partitions and table dividers for acoustic and visual privacy, as the results show. Furthermore, the need for noise reduction by counter sound or sound-masking are in line with how I experienced the disturbing noise level in the office. Before this research I was not aware of the crucial need of both the acoustic and visual privacy in activity-based office environments.

2.2. Professional practice

The research is relevant in professional practice, for researchers, workplace consultants and interior design architects in office environments as well as for the end-users. In particular, the outcome of this research, the physical office design features that impact acoustic and visual privacy, have been put together in a 3D model. This could be used in professional practice by the graduation company as an interior workplace design tool to advise organisations (clients)

about their employees' preferred office environment setting. By providing insight into the impact of the interior on the satisfaction and wellbeing of office employees, the physical work environment can be improved. In the end, this can lead to improved satisfaction and wellbeing of employees and contribute to less work stress, less absenteeism and save costs for the organisation. This is of interest for organisations, such as the clients of the graduation company. As the graduation company manages clients through the entire change management process of workplace management, insights into the client's need and the employees' preferences, are required. Furthermore, the research is of great relevance to the end-user, the office employee, since he is the daily victim of difficulties in activity-based offices.

3. Lessons learnt

3.1. Learning process

Looking back at the entire learning process, I have gone through various stages. The first learning point was during the search for an appropriate graduation company that suited my research topic. Since various literature that seemed interesting to me was written by Australian organisations, I had set my goal to do the research during a graduation internship at one of the international workplace consultants in Australia. After discovering it would be better for the research process to graduate at an organisation in The Netherlands, I found my graduation company in Amsterdam. I have learnt from this experience that setting goals and achieving ambitions is important but keeping unrealistic goals in mind can delay your process and lead to forgetting the intention of the research purpose. This seemed crucial for me and should never be underestimated.

Additionally, obtaining enough data seemed more difficult than expected. It was said by the graduation company that many organisations would be willing to take part in the online questionnaire. However, in reality this turned out to be impossible. All potential organisations failed, were not interested or were not able to participate in the research. As a consequence, the graduation company itself was questioned, but the number of respondents seemed not be enough. Nevertheless, by approaching the back-office hospital employees thanks to Dr. C. van Oel, enough respondents could be questioned and enough data was obtained.

The opportunity to move to the design team of the graduation company was the highlight of the graduation internship and has positively affected the research outcome. For instance, it had a positively effect on the development of the 3D model and provided interesting input for the physical office design features in the DCE. Being part of the design team made consultations with the interior design architects easier and gave me the opportunity to develop my design skills and be paid for it as a working student.

3.2. Learning goals

As said in the preface, p. 4, my learning objectives were to develop consultancy skills in workplace management and to learn how the workplace consultancy team and the design team within one big organisation work together, communicate and collaborate to create an office environment that fits the client. This was done by both being part of the workplace strategic consultancy team, and afterwards moving to the design team. This has led to the fact that I discovered from both sides how the workplace strategic consulting and design team work and

communicate with each other. This has contributed to a better quality of the research since I experienced the viewpoint of both sides myself. It seemed to me that sometimes the communication was not efficient, and gaps appeared. In my opinion, there are opportunities for both teams to work closer together and strengthen their common purpose. One learning point for them in the near future is the need to focus on better communication by making more time for each other.

Moreover, another learning objective was to learn how employees' needs in office design can be put together in a 3D design model. It was expected that the use of DCE would help to realise this. By learning the program Maya, I discovered how to develop a 3D design with physical office design features that impact employees acoustic and visual privacy. The use of a DCE seemed perfect to realise my learning goal. Furthermore, the acquired experience at the graduation company clarified which expertise I would like to develop in the near future: interior design.

4. Progress periods

Below is a short diary progress of the different periods, before P2, P3, P4 and P5.

P1 – P2 During this period, I was quite unknown about how to structure the research and I experienced this intensely. Not only due to the fact that I started as an intern at a new organisation and had to learn a lot about the organisation and the corporate business life, but also due to the fact that in the first weeks I was unsure about how to structure all the literature. After my first supervisor explained at P1, how to structure the definitions by making a long list, the research process started getting underway. I would like to thank Dr. C. van Oel for helping me to formulate a direction, as well as for giving me advice in Endnote. In addition, I am grateful to the second supervisor T. Jylhä for giving structure to the research. Both your advice and input improved the research process.

P2 – P3 The ranking with professionals started after P2. The professionals were divided into three groups: interior design architects, workplace consultants and office employees. All of these people had been working in office environments for at least half a year. First of all, it was chosen to interview three professionals from each group. However, taking the opinion of nine people into account was clearly not enough. Therefore, more people were interviewed. Also, one interview with a workplace consultant did not go as desired. The workplace consultant did not understand the ranking assignment and started ranking in a different way. This was, therefore, not scientifically appropriate. For this reason, another workplace consultant was interviewed.

After the ranking with professionals there were some trouble with providing the software on my laptop. It was not possible to put Revit on my Apple laptop. Therefore, an older laptop had to be cleaned up, reinstalled and the Revit and Maya programs had to be set up again. This took more time since the @hok boys were not able to help due to summer holidays. Also, because of their holidays it was not possible to get help with Maya. Owing to these technical problems, there was some delay in questions for P3.

P3 – P4 This was a long period. Learning Maya, developing the 3D model in Maya and making the render layers took a great deal of time, from July to November. In addition, learning again how to use SPSS took me more time than I had initially expected. November and December were busy months, I had too many points to focus on. Therefore, the first supervisor advised to postpone P4 so that I could focus on completing the internship.

2018 started well with new courage and a lot of energy. In the first weeks of January I read and summarised the book 'Basisboek Statistiek met SPSS', in order to be able to do the analysis. This book really helped me. I had many statistical consultations with Dr. C. van Oel as well, which improved the analysis of the data.

P4 – P5 During this period I focused on analysing the choice probabilities, comparing the choices made by the ABW and no ABW employees and drawing the main conclusions. After that, the research report was finalised with improved tables and figures, and the English grammar was checked. To conclude, the final graduation presentation was created and presentation skills were practiced.

5. References

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