

Perceptual Space in the New Era of Shopping Malls



Renovation of the Bogard Shopping Centre

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1. Introduction

1.1. Background

When I first walked into the Bogaard City Centre in Rijswijk, I found that many shops in the shopping centre are locked or vacant. This is common in the Netherlands, where more and more shopping centres are becoming vacant, and the crisis is not simply an economic crisis but a structural crisis of the model.

The development of shopping centres has benefited from urbanisation and reflects a city's economic and commercial development. Shopping centres have become an essential part of contemporary lifestyles, with their increasing size and diversity of services and entertainment reflecting the rising level of consumer spending. According to the International Council of Shopping centres (1957) definition, a shopping centre (winkelcentrum in Dutch) is a commercial place with large core shops, diverse merchandise streets, and comprehensive car parks that satisfy consumers' purchasing needs and daily activities. However, under the conditions of rapid economic and technological development, online e-commerce is also quietly rising, and its rapid development has also changed the world's original business pattern. As shown in Figure 1, the

outbreak of the COVID-19 pandemic in 2019 had a profound impact on the global real economy, and consumers were forced to stay at home. Because of the spending habits formed during the epidemic, consumers remained keen to spend money online after the outbreak ended, with both younger and older generations increasingly opting to shop online (Supermarkt & Ruimte, 2022).

1.2. Problem statement

From a broader societal perspective, shopping centres play a crucial role in facilitating social interaction and emotional experiences during the shopping process. People's attachment to shopping centres is driven by lifestyle changes and intensive activities in shopping centres (Astrid et al., 2015). Therefore, shopping centres should shift their focus from simply driving consumption to creating a relaxed, social environment where customers can interact with others. At the same time, as people's material and cultural standards continue to rise, as well as post-pandemic anxiety, it increases their spiritual need for leisure and socialising. By offering a variety of leisure and social activities, shopping cen-



Figure 1. Supermarkt & Ruimte, 2022

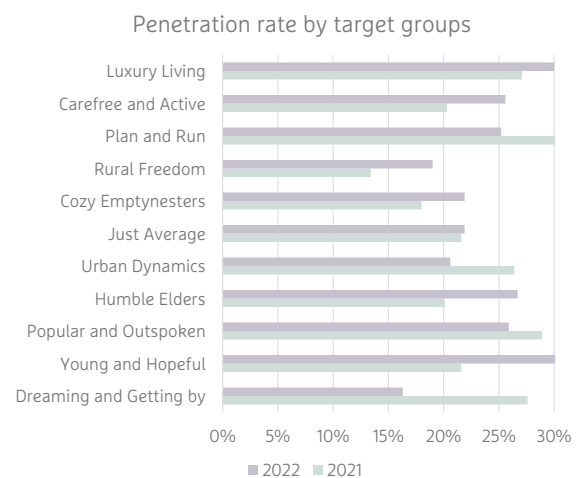


Figure 2. Supermarkt & Ruimte, 2022

tres can create a differentiated experience that e-commerce cannot replicate. From consumption-centred to experience-centred, the human body becomes the carrier of perceived space, so the transformation of shopping centres requires the participation of human perception to re-establish spatial order. What role does perception play in the transformation of contemporary shopping centres? Based on this broad question, several more minor questions can be further refined. Which perceptions play a role in shopping centres? In which shopping centre spaces do these perceptions play a significant role? What is the relationship between these spaces and perceptions?

2. Theoretical Framework

2.1. Perception of phenomenology

In *The Phenomenology of Perception*, Merleau-Ponty states that phenomenology is the study of essences, which considers all questions equivalent to defining essences, such as the nature of perception or consciousness. Phenomenology is also a philosophy that situates essence within existence, arguing that people and the world can only be understood in terms of their “facticity.” He sees phenomenology as a philosophical goal that aspires to be an ‘exact science’, but it also describes ‘living’ space, ‘living’ time, and the ‘living’ world. (Merleau-Ponty, 2012, p. 67) His views on perception have also drawn architects’ attention to architectural perception and experience. Zaidi et al. (2013) mentioned that perceptual space consists of stimuli in certain sensory domains and similarity relations. The characteristics of perceptual space focus on two basic properties: dimensionality and intrinsic geometry. Uniquely shaped spaces with a clear orientation order can give a resonant feeling of novelty, pleasure and integration. When perception is introduced into architecture, the most apparent association is visual. However, this idea also exposes the inertia of architecture, whereby most of the architectural experience is gained visually, while the other senses seem to be neglected. According to Palasma, architecture in our time is becoming retinal art for the eyes. Architecture has become art fixed by printed images hastily captured by a camera. Our vision tends to flatten and lose its plasticity; we no longer experience our presence in the world but view it from the outside as spectators of images projected on the retina’s surface. However, the experience of architecture is multisensory: the eyes, ears, nose, skin, tongue, bones and muscles can equally measure qualities of matter, space and scale (Pallasmaa, 1994, p. 30).

As Merleau-Ponty emphasised, perception and experience are gained through the body’s movement through space. Danish architect Jan Gehl similarly emphasises that a thorough understanding of the modes and domains of action of the human senses is essential for designing and dimensioning various outdoor spaces and architectural layouts. Sensory knowledge is also essential for understanding all other forms of direct communication and human perception of spatial conditions and dimensions (Gehl & Koch, 2011, p. 63).

In order to visualise the senses and explore their impact on social space, Gehl categorised different senses based on social distance. Figure 4 shows the results of visual experiences at different social distances. He suggests that the social field of view ranges from 0-325 ft (~100 m), from recognising the other person to an effective conversational distance, and finally close enough to be nerve-racking and uncomfortable (Gehl & Koch, 2011, p. 65). Assuming that the results of this visual reality experience are applied to social spaces, the sensory experience can be enhanced by altering the structure of the space, resulting in a better spatial experience. Figure 3 shows the creation of a better social space by enhancing the visual and auditory experience (Gehl & Koch, 2011, p. 62).

These perceptual and architectural relevance theories give the author a new perspective on the relationship between shopping centres and their users. Shopping centres were born out of people’s needs in the 20th century, but nowadays, what society needs is no longer just a place to satisfy shopping needs but also a place that can communicate with people’s bodies and minds and provide feedback. The following investigation unfolds based on this theoretical framework of perceptual-spatial relationships.



Figure 4. Seeing- a matter of distance (Gehl& Koch, 2011)

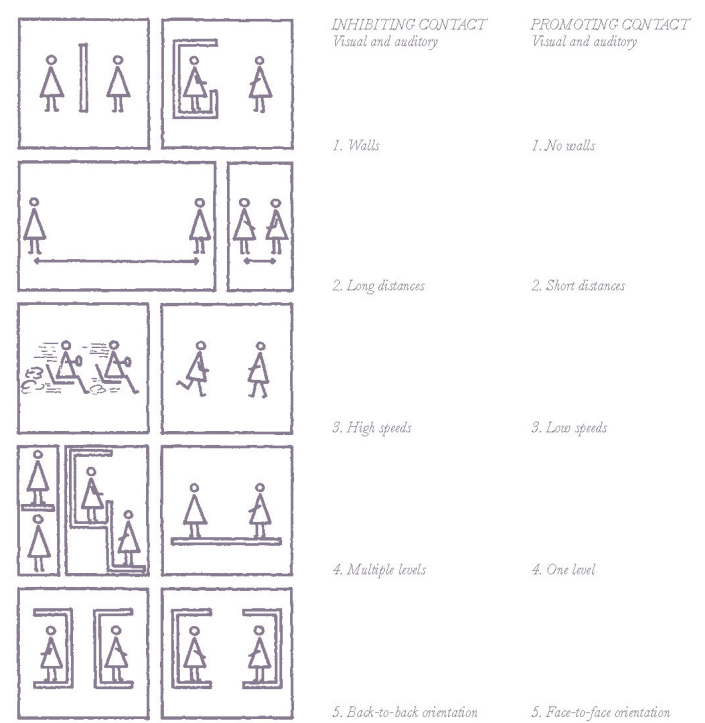


Figure 3. The senses and communication (Gehl& Koch, 2011)

3. Methods

As discussed by Lucas (2016), Qualitative methods understand the subjective qualities of opinions from a human perspective, whereas quantitative research is measurable and often measurable. The focus is usually on objectivity and working towards absolute, incontrovertible truth. Both qualitative and quantitative methods were used in this study, including case studies, in-depth historical and documentary research, questionnaires and statistical analyses.

3.1. Case studies

Based on the four refurbished 20th century Dutch shopping centres selected by the team in the previous survey, it can be seen that Bogaard Shopping centre and Leyweg Shopping centre have retained more of the 20th century architectural style after refurbishment. In contrast, the Mall of the Netherlands and Hoog The Mall of the Netherlands and Hoog Catharijne were all recently refurbished. Both shopping centres have undergone major demolitions and extensions, so it is difficult to find traces of the original build-

ings in today's modern luxury shopping centres. Both shopping centres have undergone extensive spatial renovations and introduced more convenient technological services to enhance the shopping experience for consumers. In order to explore the role of the senses in shopping centres and their spatial connections, Bogaard Shopping centre and Mall of the Netherlands ("MoN") were selected for this case study.

As the map in Figure 6 shows, these two shopping centres currently cater for different types of groups, complementing each other but still competing. Spatial comparisons can be made between the Leidsenhages Shopping centre before MoN's transformation and the Bogaard Shopping centre, which opened simultaneously. In contrast, the modern experiential shopping centre after the MoN conversion maintains a spatial connection with the modern experiential shopping centre. The experiential shopping centre can be compared to the Bogaard shopping centre which maintains its tradition. The following is a historical and qualitative study of both shopping centres.

Figure 7.1. Leidsenhage Shopping Centre 2016



Figure 7.2. Bogaard Shopping Centre 2023



Figure 7. Similarities between Bogaard Shopping Centre and Leidsenhage Shopping Centre

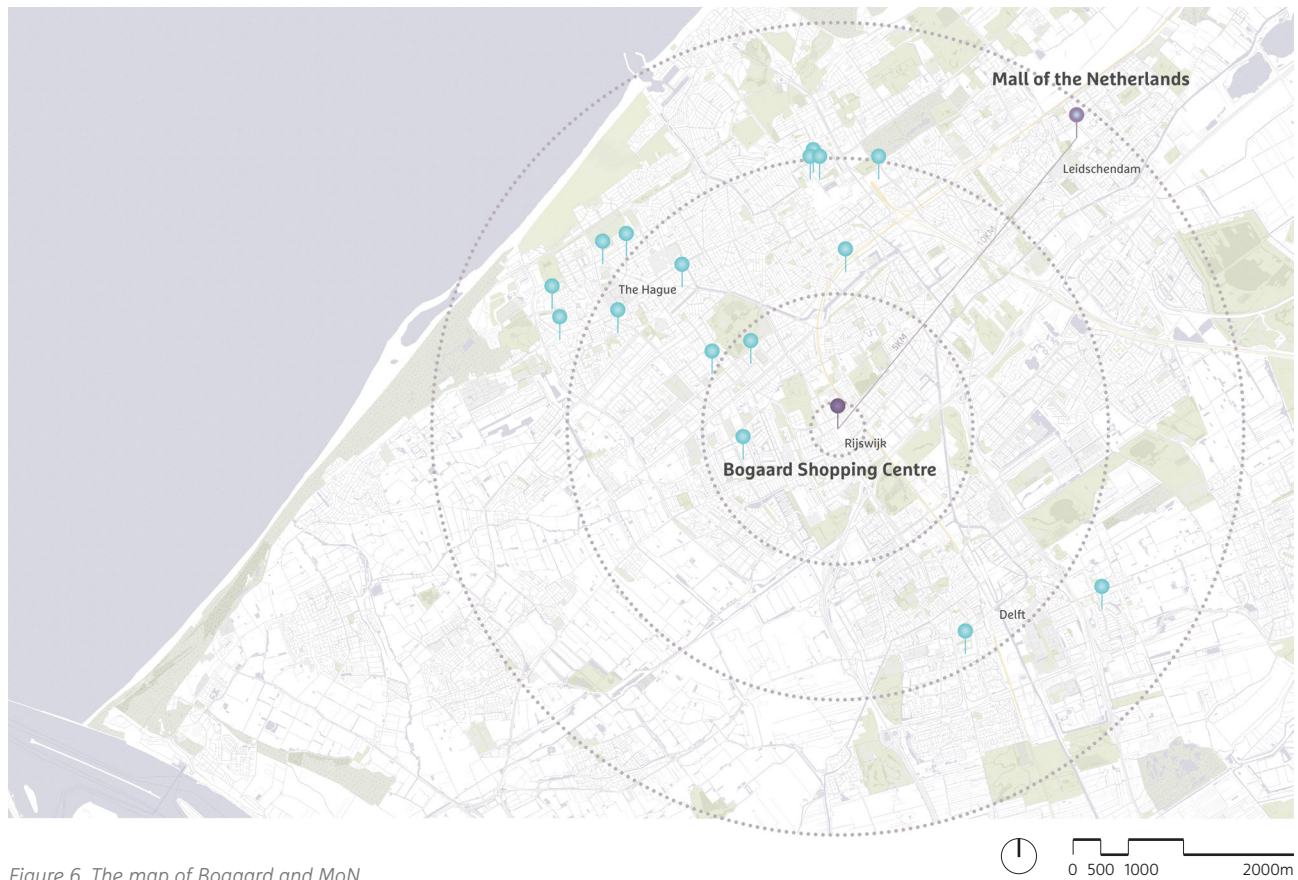


Figure 6. The map of Bogaard and MoN



Figure 7.3. Leidsenhage Shopping Centre 2016



Figure 7.4. Bogaard Shopping Centre 2023

Figure 7. Similarities between Bogaard Shopping Centre and Leidsenhage Shopping Centre

3.2. Historical and literature research

This section studies previous research findings based on actual cases of the refurbishment and renovation of the Mall of the Netherlands. It explores new perceptual cues on this basis to provide sufficient theoretical basis and practical application experience for the spatial design of the Bogaard shopping centre renovation.

Before the emergence of shopping centres, department stores and aisles were the main retail formats (Kooijman, 1999). The retail market in that era was based on the primary goal of satisfying the material needs of consumers in their daily lives. Moreover, the first fully enclosed shopping centre, Southdale Shopping Centre, opened in 1956 the United States, is the oldest surviving example of this type of retailing (Hardwick & Gruen, 2004, p. 144). In the same period, Archibald Bogaardt, the then mayor of Rijswijk, decided to plan a shopping centre in the centre of Rijswijk after visiting the Intercity Shopping Centre in San Francisco. Bogaardt Shopping Centre opened in 1963 and was the Netherlands' first purpose-built modern shopping centre. This paper does not distinguish between shopping centres and shopping malls, but D.C. Kooijman (1999) argues that shopping malls are more diverse and entertaining than shopping centres. This nomenclature distinction is also very much in line with the spatial structure and function of the Bogard shopping centre and the Dutch shopping centre.

MoN was selected for comparison with Bogaard because the MoN (named Leidsenhage Shopping Centre at this time), before demolition and renovation began in 2016, had a similar spatial structure and form to Bogaard. The Leidsenhage Shopping Centre, which opened in 1971, retained a 1960s open-air shopping street form when it first opened. The Leidsenhage Shopping Centre opened in 1971, retaining the 1960s open-air shopping street format, and as shown in 7.1 and 7.2, the current Bogaard still retains a similar open-air shopping street with glass canopies. In subsequent extensions and refurbishments, the Leidsenhage Shopping Centre has added glass roofs to the shops to create an enclosed pedes-

trian walkway, a feature also reflected in the Bogaard. The most notable difference between the two shopping centres is the façade material, with Leidsenhage's façade made of grey stone and Bogaard's of orange-red brick. After the renovation at the end of the 90s, Bogaard retained its quaint brick walls but added large outdoor green areas. Leidsenhage Shopping Centre used a more modern glass-fronted façade after renovating to a MoN. Leidsenhage Shopping Centre was transformed into MoN using a more modern glass-fibre reinforced concrete to create a streamlined façade, recycling the existing building's structure and materials as much as possible. The MoN also incorporates the existing ecological structure into the landscape, interior and green walls.

3.3. Qualitative research

Qualitative analyses collect field information from a more subjective perspective than historical research. Ethnographic research is a prime example. Ethnographic research emphasises in-depth engagement with a particular site, mainly through active and comprehensive observation (Groat & Wang, 2013, p. 225). Architectural space is where behaviour is linked to behaviour, and the two influence each other. Space will inspire, promote, or inhibit human behaviour; however, human behavioural activities will require appropriate and reasonable spatial forms. Shopping centres' spatial experience design mainly manifests in the interaction between consumer behaviour and the spatial environments'. Consumers are the main body of the shopping centre's spatial environment, which has guiding significance for optimising their shopping environment. Therefore, to meet the requirements of the new era of consumer pursuit of personalised, diversified, interactive experience.

In the shopping centre case, the researcher herself was the primary research tool, using field experience participant and non-participant observation to analyse and summarise the site. Secondly, interviews and questionnaires with shopping centre participants are also necessary for ethnographic research. In this study, different

groups of participants in shopping centres were selected to conduct experiential feedback surveys to further analyse the interactions between people and architectural spaces by recording the participants' feelings about different spaces within the shopping centres and their emotional needs.

Firstly, the researcher travelled to Bogaard and MoN to conduct non-participant observations, record walking paths and select social spaces where people gather. Six observation points were chosen for each mall, each photographed at different distances, and six perceptions were recorded at different distances. As a non-resident visiting both malls for the first time, the researcher was able to record the atmosphere and experiences within the malls from as objective a perspective as possible.

The second step of the participatory research was next. As Weber (2002) explained, sociolo-

gy explains and accounts for such activities by gaining insight into the subjective meanings that actors ascribe to actions to understand the "subjectively intended meaning of actions". The target group for the survey was all the people in the mall, then subdivided into internal and external groups. The internal group was defined as the permanent residents of the place; the external group was defined as non-residents, such as tourists, outsiders and students who came to study. The offline questionnaire was divided into two main sections to investigate the senses: on-site experience and off-site experience. The on-site experience involves randomly selecting three people at six observation points, having a short conversation and rating the senses. Photographs of the six observation points in another mall were then provided for the same sensory ratings. In this way, each mall has one report of the on-site experience and one report of the off-site experience.

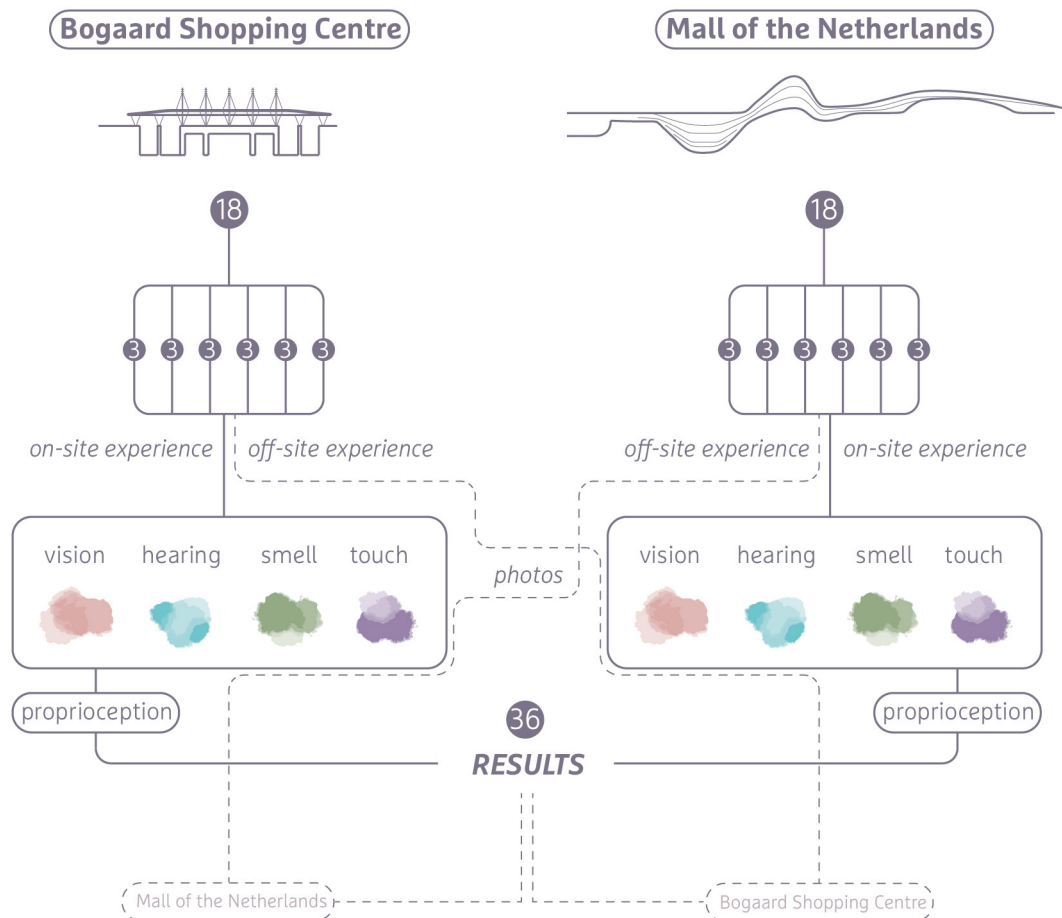


Figure 8. Survey process

4. Results

4.1. Sensory experience

Notes on my visit to the Bogaard shopping centre:

I took the train from Delft station to Rijswijk in the afternoon of the 14th of February. It took me five minutes to walk to the Bogaard shopping centre, the first time I had visited. And it was a sunny day, so everyone chose to go out. The first thing I saw was the construction site, which was relatively quiet, and I was surrounded by music from the different shops as I walked through the narrow aisles between the construction site and the shops. After that it was time to go to the north entrance of Prinsen Passage. The sound is even louder when you enter the building and the sweet smell of food permeates the long corridor.

Walking into the central hall was very bright. Even on a rainy day, there should be plenty of natural light. The crisp sound of clinking dishes came from the main dining area. The hall benches are filled with older people and children. Crossing the hall, I entered the dimly lit, low corridor, where the ceiling at the exit had been raised, and high glass windows let the sunlight back into the room. When I touched the walls, I felt the rough red bricks. At this point, I noticed that the floor tiles under my feet also differed.

When I walked out of the mall, I could smell the fries again, and food and beverage outlets were at the entrance. Since the outdoor car park has been changed into a multi-storey underground car park, the plaza on the south side of the building is decorated with fountains and flower beds, and the benches and lawns are filled with people chatting and lazing around. In spring, the flower beds should be full of flowers, and the courts would be plunged into the flowers so that people can smell the fragrance of the flowers while sitting on the benches. But now the weather is colder and even the fountain is not turned on. I also enjoyed the sunshine on the benches for a while, and although it wasn't very warm outside at the moment, the wooden benches weren't as cold as the metal benches to the point of sucking away one's body heat.

I left the South Plaza, followed the large roof on the south side of Prinsenpassage to the west, and saw the flower shop on the corner. Passing by the lush plants was refreshing. Right next to the florist is Albert Heijn XL. The through-height glass façade and escalators make for a bright and spacious entrance, but I had no purchases to make, so I didn't want to go inside a supermarket that relies on lights to illuminate it and looks crowded. Turning the corner and continuing north, I found In de Terp deserted due to the building's dereliction and was a far cry from the bustling Prinsenpassage. Walking outside the building, my hand touched the smooth brick wall. The flat, clean, orange-red brick wall gives the building a more youthful and modern feel. The red brick wall is full of tall windows, and the glass wall at the entrance is tempting to go in and look at. Unfortunately, the door is locked, but through the glass, you can see the bright interior, with beige and red floor tiles guiding people to the central hall. The raised glass roof and sunshades in the lobby create beautiful shadows on the floor and walls. Although vacant, the building is still warm and bright. On the north and west sides of the building there are slopes of green and dead grass, which are not accessible because they are above ground level.

After walking around In de Terp on the north side and heading south again, the pedestrian traffic gradually increases. The Sterpassage has been demolished and is still under construction, and the small shopping centre on the north side of the building is also slightly dilapidated. The Sterpassage has been destroyed and is still under construction, and the small shopping centre on its northern side needs to be addressed more. However, its glass façade and skylights on the interior maintain the natural light. Back at the north entrance of Prinsenpassage, where we first arrived, in the middle of the Bogaard shopping centre, we can see an outdoor relaxation area has been set up. Colourful decorative balls were wrapped around the still bare trees, and painted wooden benches were neatly arranged underneath as people laughed, joked and tasted food.

Finally I came to a typical Dutch shopping street. Here the shops on the side of the road had canopies, and in the centre of the road there were plants and benches where you could rest. Walking along one side, I could smell the unique smells of the different shops, from cosmetics to food. After crossing this street, you again come to the big square on the south side, where there are many amusement facilities and more children. It was almost evening, so I didn't waste time and left for the Mall of the Netherlands before sunset.

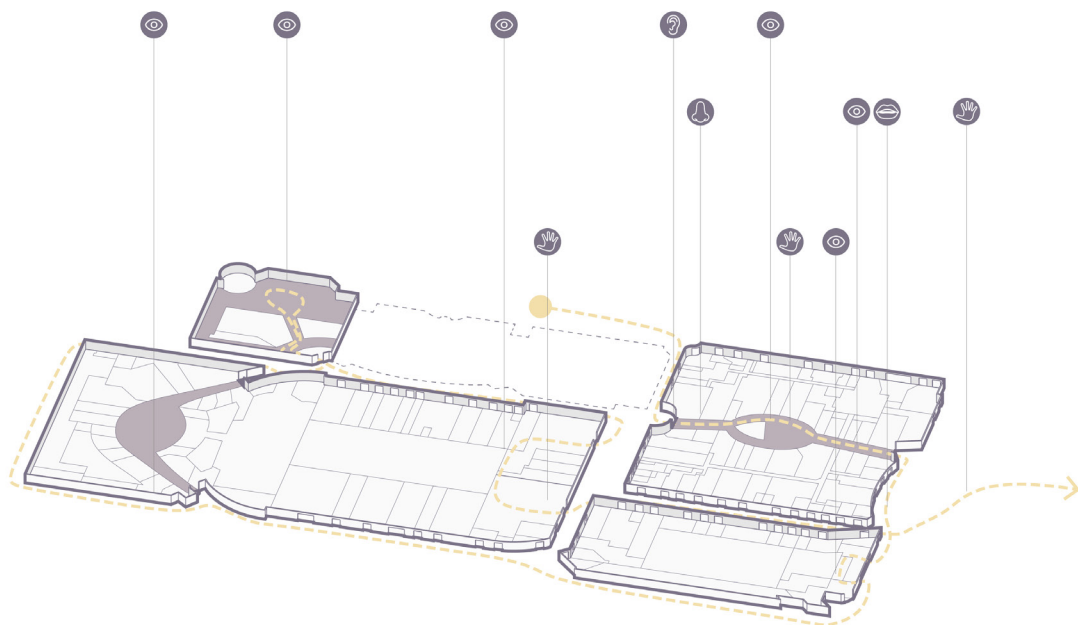


Figure 9. Bogaard shopping centre experience route

Notes on my visit to the Mall of the Netherlands:

The Mall of the Netherlands is very different from the Bogaard shopping centre, which is located in the city centre and surrounded by residential areas. It has several small shopping malls, making it easy for people to buy their daily necessities. Bogaard shopping centre is in the city centre and surrounded by residential areas. MoN, on the other hand, is close to the city's edge, with huge enclosed buildings spread out over the place.

The exterior of this modern mall is striking, with its ribbon-like streamlined white façade glowing in the setting sun. The façade, which feels metallic to the touch, is a super-thin formwork made of glass fibre-reinforced micro concrete. The white panels and the glass form the mall's sleek and varied periphery. Entering the mall through the entrance in the northeast corner, I found the interior space brightly lit with colourful neon signs of different shops. The corridors are lined with double-storey shops, with each window carefully designed to match the style of the various brand shops. The natural light from the irregularly shaped skylights on the canopy is not as noticeable as the artificial lighting in the mall.

Like an intersection in a city, the mall's internal passageways are signposted at their junctions. The shops at these intersections also follow the streamlined shape of the building with rounded facades. Like Bogaard, MoN has a lounge area in the mall's centre. The elliptical skylight in the canopy is surrounded by bronze-coloured corrugated vertical aluminium louvres, echoing the structure of the façade. Leather and fabric sofas and benches match the ambience of the mall, and while most of the visible materials in the interior are hard metal and glass, the soft seating and sofas appeal to shoppers tired of walking around. As I sat down on the comfortable sofas, I realised it was getting dark outside. The absence of natural light makes the colourful interior lighting even more vibrant, and the interior space seems cut off from the outside world.

The main attraction is the designer gallery and its upstairs dining area. Luxurious gold chains hang down from the ceiling, leading one to believe they are some fabric tassels. The Designers Gallery is filled with the scent of various perfumes, creating an elegant ambience for the entire corridor. The upstairs dining area, on the other hand, is a collection of cuisines from different countries, and the view across the whole area can be seen through the glass walls to the sky outside with just a hint of red afterglow. This floor also has a gaming area and a cinema, making the mall a versatile entertainment complex.

There was still some time left before the mall closed after dinner, and the shops downstairs were still packed with people. Compared to traditional shopping malls, the prominent artificial lighting makes extending the mall's opening hours possible. I was still in a trance until I stepped out of the mall and into the night. The various materials I was exposed to, the smells in the different areas, the non-stop background music and noise, and the dead-end lighting constantly stimulated all my senses in the mall. A slight mental exhaustion follows the excitement.

In my experience, I was impressed by the cosy natural light and warm wooden benches in Bogarde Mall. I returned to Bogarde Mall on 8 June because, on my first visit to the mall, the trees and plants had not yet sprouted and blossomed. In contrast, in the piazza, the flower beds and trees were already in full bloom, and as I sat on the bench in the south piazza, I could smell the flowers and plants behind me. The MoN experience was more complex, and all my senses were engaged to feel the atmosphere of the shopping centre. Combining the results of the two cases, light, colour, and spatial scale affected my vision. Ambient sound stimulated my sense of hearing, the aroma of perfume, food and flowers triggered my sense of smell, and materials with different textures stimulated my sense of touch. During the visit, my body was in constant motion, so my senses were also involved. In the end, I chose visual, auditory, olfactory, tactile and proprioceptive senses as the research ob-

jects of the questionnaire.

The most impressive part of the immersive experience at both malls is undoubtedly the social spaces. From the roads or corridors between the two stores to the lounge areas where the roads converge, from the small cafes to the food and beverage plazas, from the indoor lounge benches to the outdoor gardens, shopping in a store was no more appealing than talking to friends or sharing food in a social space. Therefore, the second stage of the questionnaire survey focused on various social spaces inside or outside the shopping centres. Based on the previous research on the history and spatial form of shopping centres, the social spaces in shopping centres can be roughly classified as benches, passageways, dining areas, entertainment areas, and gardens, which are distributed inside and outside the malls by a combination of points, lines, and surfaces.

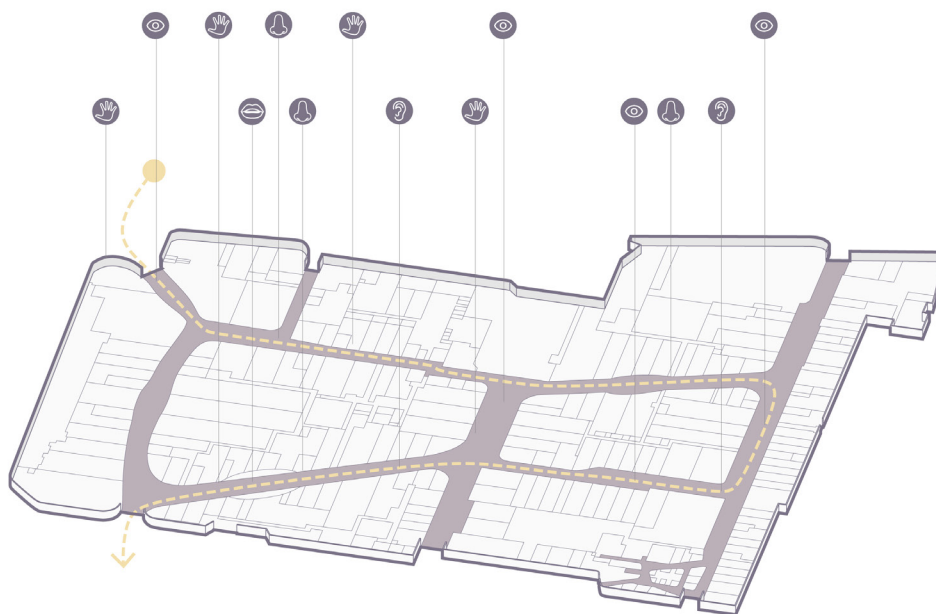


Figure 10. Mall of the Netherlands experience route

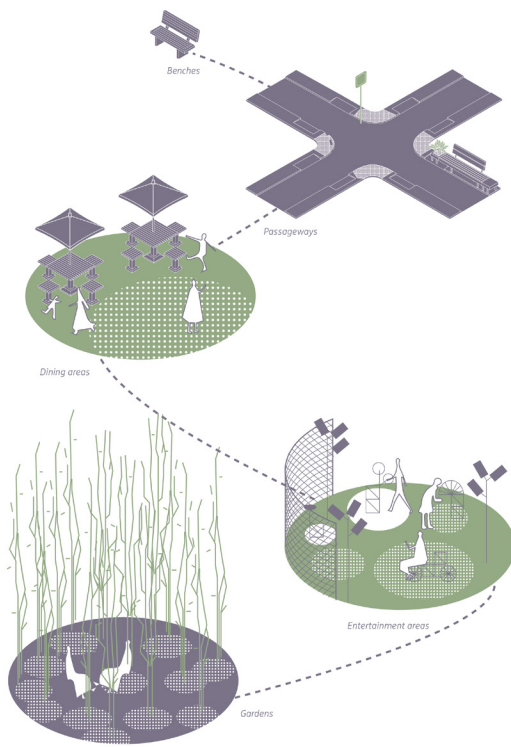


Figure 11. Five social places

Figure 12. Age group

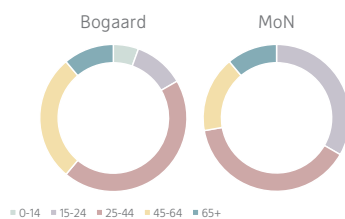
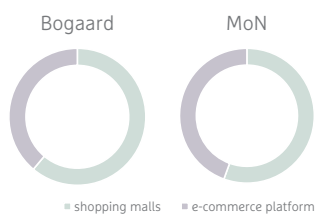


Figure 13. Which shopping method do you prefer?



4.2. Questionnaire results

After getting a basic understanding of the respondents, I asked them to fill in the rating sheet “Perceived experience of the mall here and now”. At the same time, I took out a photo of another shopping mall and asked them to fill in the rating sheet based on the photo. According to the questionnaire results, about one third of MoN respondents were from outside groups, while all Bogaard respondents were residents. Most Bogaard respondents stated they had visited the mall before the remodelling. They preferred the revamped Bogaard because it is now clean, has a wider variety of products, is affordable, has easy parking, and has a nice garden plaza. When MoN asked people if they had been to the pre-renovation mall, half said they had not. For those who had been, many liked the revamped mall. They think it is more modern now, and they like the ambience. It has a lot of fashion brands, ample parking, a better dining area, easier accessibility and so on. A few respondents still miss the open streets and bookstores they remember. In each of the two malls, I asked the respondents to describe their feelings about the mall at this point in time in one word, and the results are shown in Figure 14. In the end, I obtained four mall experience results: the on-site experience at Bogaard, the on-site experience at MoN, the off-site experience at Bogaard, and the off-site experience at MoN, as shown in Figures 15 and 16.

When comparing the on-site and off-site experiences of the two shopping centres, it can be seen that the respondents of the off-site experience put most of their focus on the visual. When comparing the results of the on-site experience at both shopping centres, Bogaard and MoN continue to outperform the other senses in terms of the visual experience. However, the gap between the other senses and the visual was not as pronounced at MoN, whereas at Bogaard, the other senses were not as pronounced as the visual. The senses of hearing and touch were significantly weaker at Bogaard than at MoN. This implies that MoN has increased the stimulation of the other senses while retaining the visual experience and that in some cases,

the senses of smell or touch are more impactful than sight.

When conducting the questionnaire survey, it was noticeable that some people had been to other malls. Some of those who had been to the mall in the photo recalled an unforgettable experience, but overall, photos alone do not capture the senses of hearing, smell and touch. At Bogaard, half of respondents said they had been to MoN, but most preferred the atmosphere at Bogaard. In the case of MoN, only about 20% of respondents had been to Bogaard, but from the overall survey results, the majority still chose Bogaard, as shown in the graph. MoN, which is more stimulating to people's senses, has not gained as much popularity as Bogaard as I initially thought. In the following discussion, the reasons for Bogaard's popularity will be explored based on the results of the perceptual study of the two shopping centres.

Bogaard shopping centre

Figure 14. Word clouds

Mall of the Netherlands

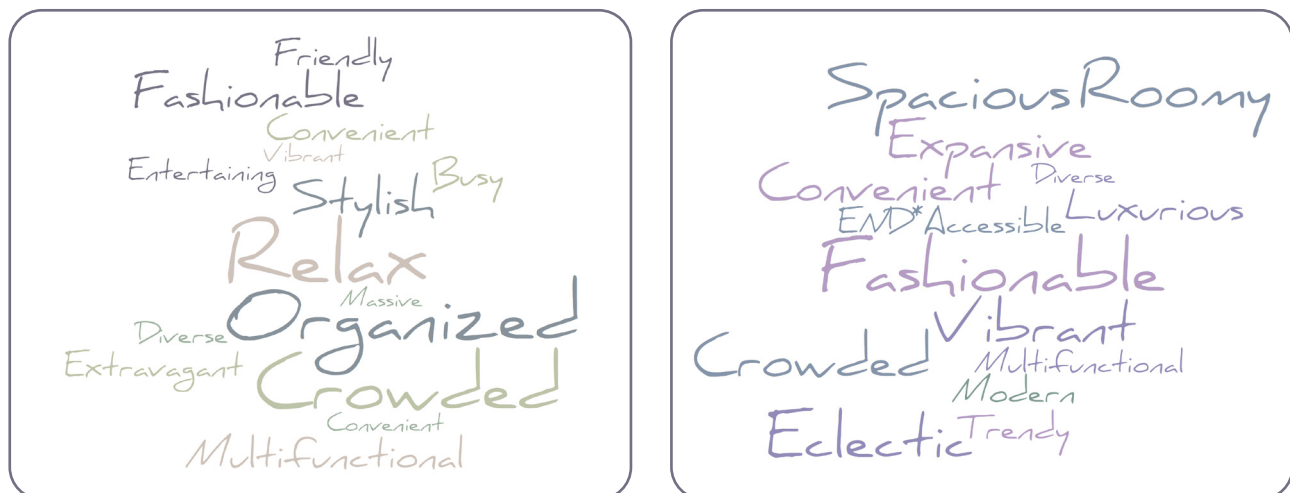
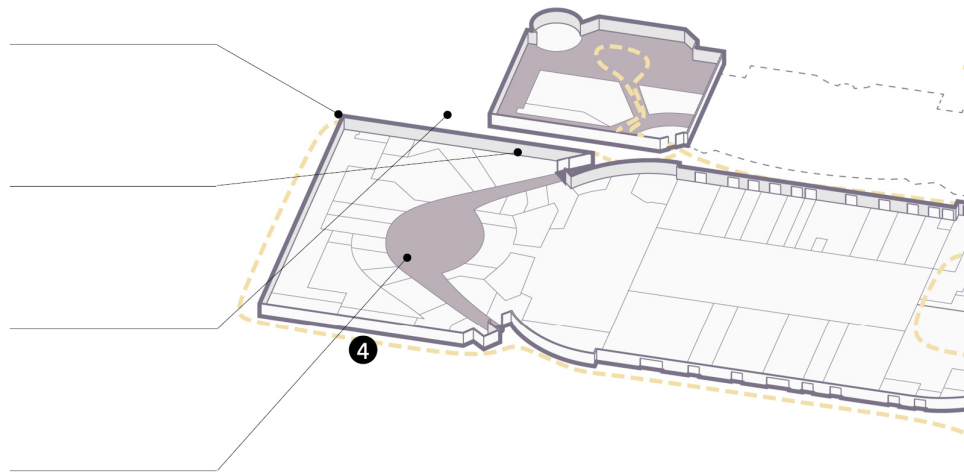
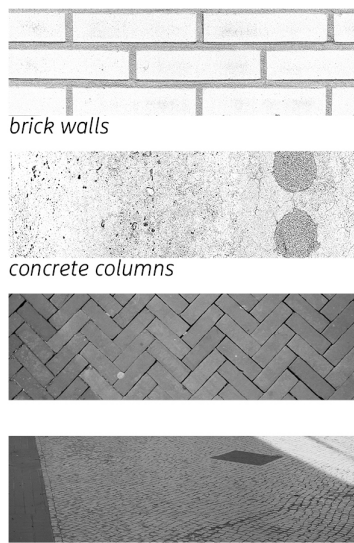


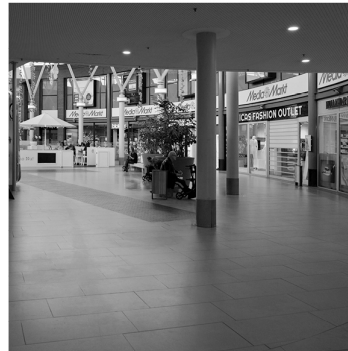
Figure 15. Bogaard shopping centre sensory rating



1



2



3

**On-site**

Vision	+	+	+	.	.	.
Hearing	+	+	.	.	.	.
Smell	+	.	.	.	.	.
Touch	+	+	.	.	.	.
Proprioception	+	.	.	.	.	.

Off-site

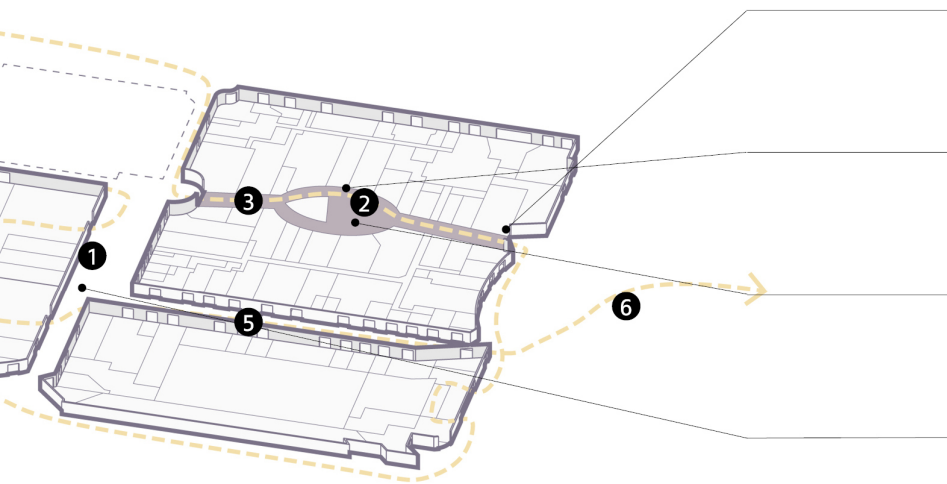
Vision	+	+	+	+	+	+
Hearing	+	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	+	.	.
Hearing	+	+	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	+	+	.
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	.	.	.	.	.
Proprioception	+	+	+	.	.	.

Vision	+	+	+	+	.	.
Hearing	+	.	.	.	.	.
Smell	+	+	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.

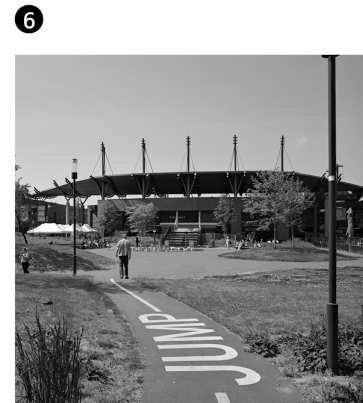
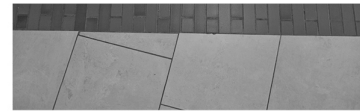
Vision	+	+	+	+	+	+
Hearing	.	.	.	.	.	.
Smell	+	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.



brick walls



painted interior walls



Vision	+	+	+	+	.	.
Hearing	+	+	.	.	.	.
Smell	+	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	.	.	.
Hearing	+	.	.	.	.	.
Smell	+	.	.	.	.	.
Touch	+	+	+	.	.	.
Proprioception	+	.	.	.	.	.

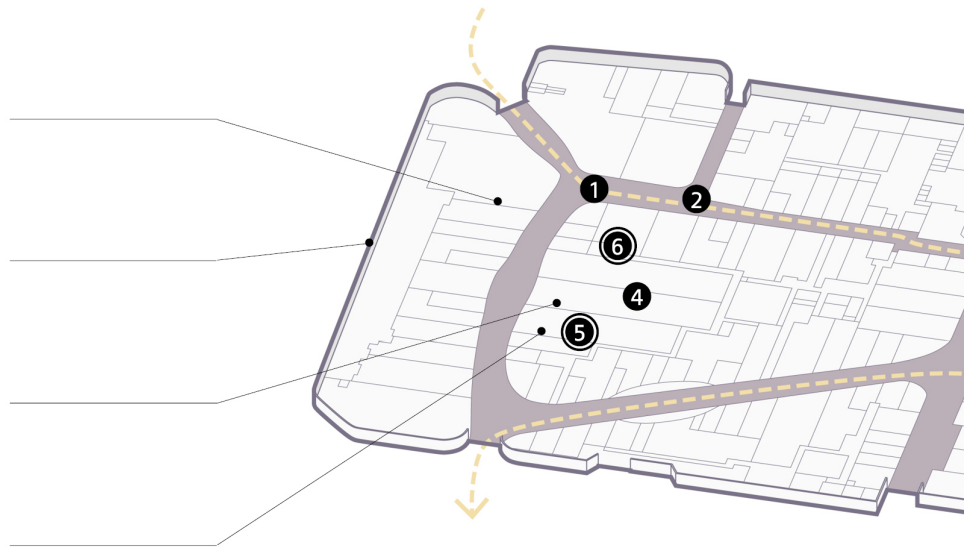
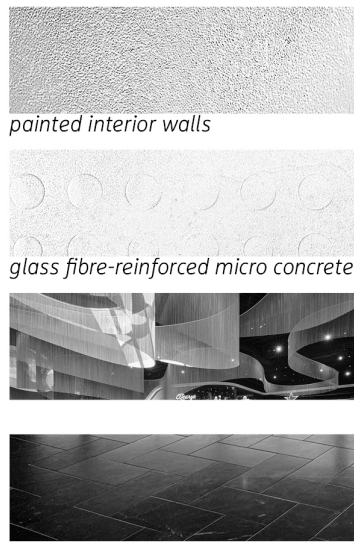
Vision	+	+	+	.	.	.
Hearing	+	.	.	.	.	.
Smell	+	+	.	.	.	.
Touch	+	+	.	.	.	.
Proprioception	+	.	.	.	.	.

Vision	+	+	+	+	+	+
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	.	.	.

Vision	+	+	+	+	+	+
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	+	.	.
Hearing	.	.	.	.	.	.
Smell	+	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	+	.	.

Figure 16. Mall of the Netherlands sensory rating

**On-site**

Vision	+	+	+	+	.	.
Hearing	+	+	+	.	.	.
Smell	+	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	.	.	.	.	.

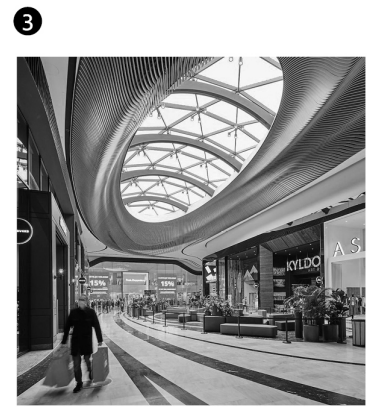
Off-site

Vision	+	+	+	+	+	+
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	.	.	.



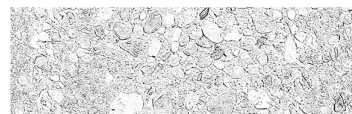
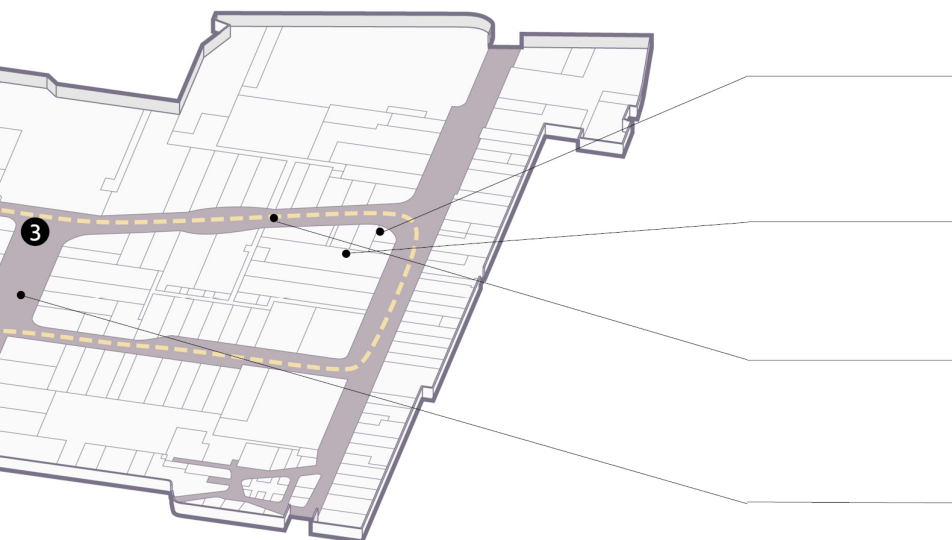
Vision	+	+	.	.	.	.
Hearing	+	+	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	+	.	.	.	.
Proprioception	+	+	+	.	.	.

Vision	+	+	+	+	+	.
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	+	.	.

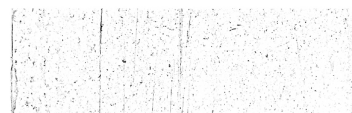


Vision	+	+	+	.	.	.
Hearing	+	+	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	+	+	.	.	.
Proprioception	+	.	.	.	.	.

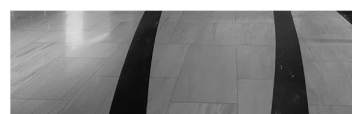
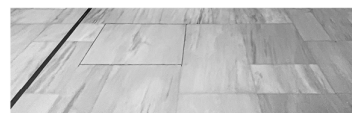
Vision	+	+	+	+	+	.
Hearing	.	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	+	.	.



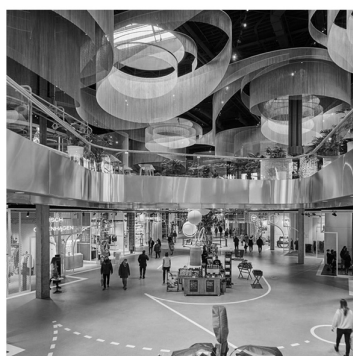
concrete columns



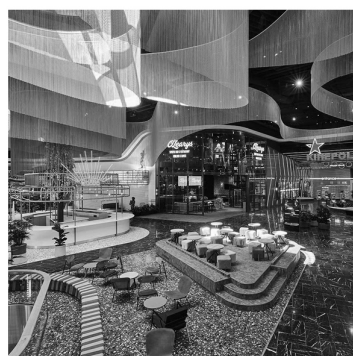
concrete columns



4



5



6



Vision	+	+	+	.	.	.
Hearing	+	+	.	.	.	.
Smell	+	+	.	.	.	.
Touch	+	.	.	.	.	.
Proprioception	+	.	.	.	.	.

Vision	+	+	.	.	.	.
Hearing	.	.	.	.	.	.
Smell	+	+	+	+	.	.
Touch	+	+	+	.	.	.
Proprioception	.	.	.	.	.	.

Vision	+	+	+	+	+	.
Hearing	+	+	.	.	.	.
Smell	.	.	.	.	.	.
Touch	+	.	.	.	.	.
Proprioception	+	.	.	.	.	.

Vision	+	+	+	+	+	+
Hearing	+	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	+	+	+
Hearing	.	.	.	.	.	.
Smell	+	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	.	.	.	.

Vision	+	+	+	+	+	.
Hearing	+	.	.	.	.	.
Smell	.	.	.	.	.	.
Touch	.	.	.	.	.	.
Proprioception	+	+	+	.	.	.

5. Discussion

The effective social distance for people is up to seven metres (Gehl & Koch, 2011, p. 69), and the scale at which people connect with space can be very small or very large. The five main social spaces of the shopping centre proposed in the survey - benches, passageways, dining areas, entertainment areas and gardens - perfectly cover the needs of socialising at different scales. People sitting on the benches focus on the benches' material, i.e. its tactility. Walkers in the passageways between the shops are drawn to the various food trolleys or perfume bars, and the smells spread along the long aisles. Dining areas, entertainment areas and gardens mix more senses according to their size and scale.

Figure 17 shows that up to three metres, people's attention is more focused on the senses of smell and touch, and beyond three metres, the effect of smell and touch decreases rapidly. At this point, the person relies more on hearing and sight to connect with things in the neighbourhood. These places and sensory combinations can be summarised in Figure 18, where the interior spaces are all enclosed by ceilings, floors, walls or columns. Taking the space at the very centre, which is 7 metres wide, as a benchmark, the distance between the ceiling and the floor is varied vertically, and the distance between the walls is varied horizontally. When the ceiling is too low, it can feel oppressive, while a too high ceiling feels empty. Just as the distance between people's social distance will give people different social feelings, small-scale space tends to give people an intimate and warm feeling, while large-scale space makes people feel cold and unapproachable.

As in the site selected for Figure 17, Bogaard has a large number of large-scale social spaces, with a central double-height lobby that houses the food court, where people do not feel safe to dine and where the large scale of the space does not feel like a place to relax and enjoy dinner with

friends and loved ones. MoN chose to make the dining space more intimate by adorning the high ceiling with a metal chain to bring it closer to the floor. More intimate. The intervention of furniture, such as benches, can also break the sense of emptiness in large-scale spaces. MoN set up benches and other resting spaces at regular intervals along the passageway, thus shortening the length of the space and allowing people's bodies to continue to come into contact with the various materials in the room, thus enhancing the intimacy between people and the space. In the social space, the combination of floor, ceiling, walls and columns is needed to create the correct scale of space, and the furniture is used to create a warm and severe or intimate and distant atmosphere. What people surveyed remember most about Bogaard is its mottled brick walls and wooden benches. These traditional materials give Bogaard a time-dimensional experience distinguishing it from new buildings.



Figure 17. Sensory experience diagram

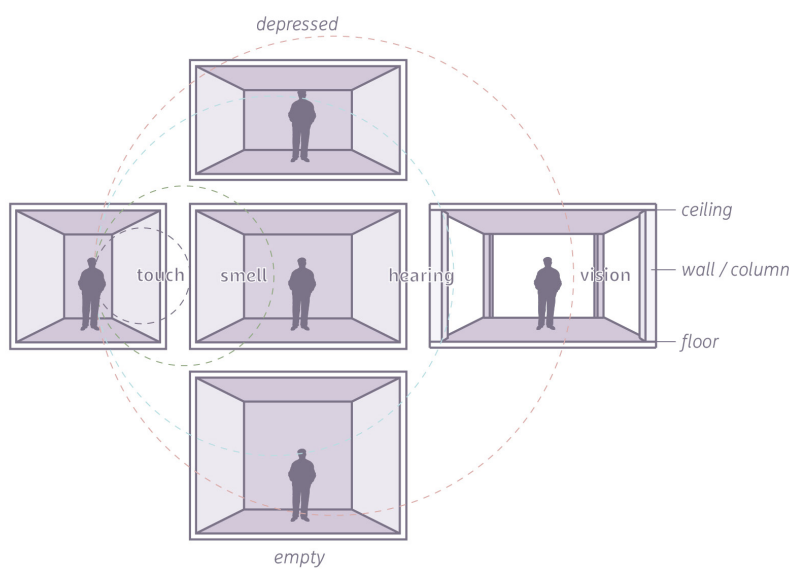


Figure 18. Spatial scale and senses

6. Relevance

Due to their high frequency of daily use, shopping centres need to be updated according to the population's current needs. Liliane Wong, an architect specialising in design interventions and adaptive reuse, explains that adaptive reuse, i.e. the regeneration of heritage, should adjust the reuse of a building for a different purpose. Successful interventions in any existing order, be it urban planning, music or textiles, constitute a change in the established order (Wong, p35). She gives a vivid and exciting example of creating a new structure by incorporating electronic devices and digital components into the warp and weft of an old woven fabric. Just as many high technologies have been introduced into contemporary shopping centres to provide a better shopping experience, integrating these "components" adapted to contemporary society into the original historic fabric and, ultimately, its harmony requires an in-depth study of the original order.

As a historically significant 20th-century shopping centre in its own right, a clear theoretical basis is needed to renew it. This study chose Pereira Roders' value framework (2007) for the assessment. The rationale for choosing this framework is that it covers a wide range of values and is relatively recent, incorporating multiple theories and definitions of heritage values.

The value of heritage is assessed by human beings, which is inevitably subjective, this study has selected a questionnaire survey of the groups that have a high usage of the shopping centre. The results have been integrated into the value assessment of the shopping centre. According to the value framework, the core human perception in this study is mainly reflected in social value, and the individual and collective

emotions are reflected in my observation and questionnaire survey, respectively. Vanagi Hara, the design director of Muji, believes that more senses can interact with each other, linking architectural information to the senses and storing it in people's memories. Multiple sensory stimuli and memories intertwine in the human brain to create an excellent picture (Hara, 2007). Memories and emotions of old buildings as social value are also part of the heritage value. Beyond the social value, the Bogaard Shopping Centre is of more ecological and age value. As the first shopping centre in the Netherlands, Bogaard Shopping Centre is critical in developing Dutch commercial architecture. In the course of the investigation, it can be found that Bogaard Shopping Centre pays much attention to the connection between the building and the surrounding environment, especially the creation of the natural environment. Outdoor gardens and fountains provide a place for people to relax, and grassy slopes replace the walls.



Figure 19. Value framework

7. Conclusion

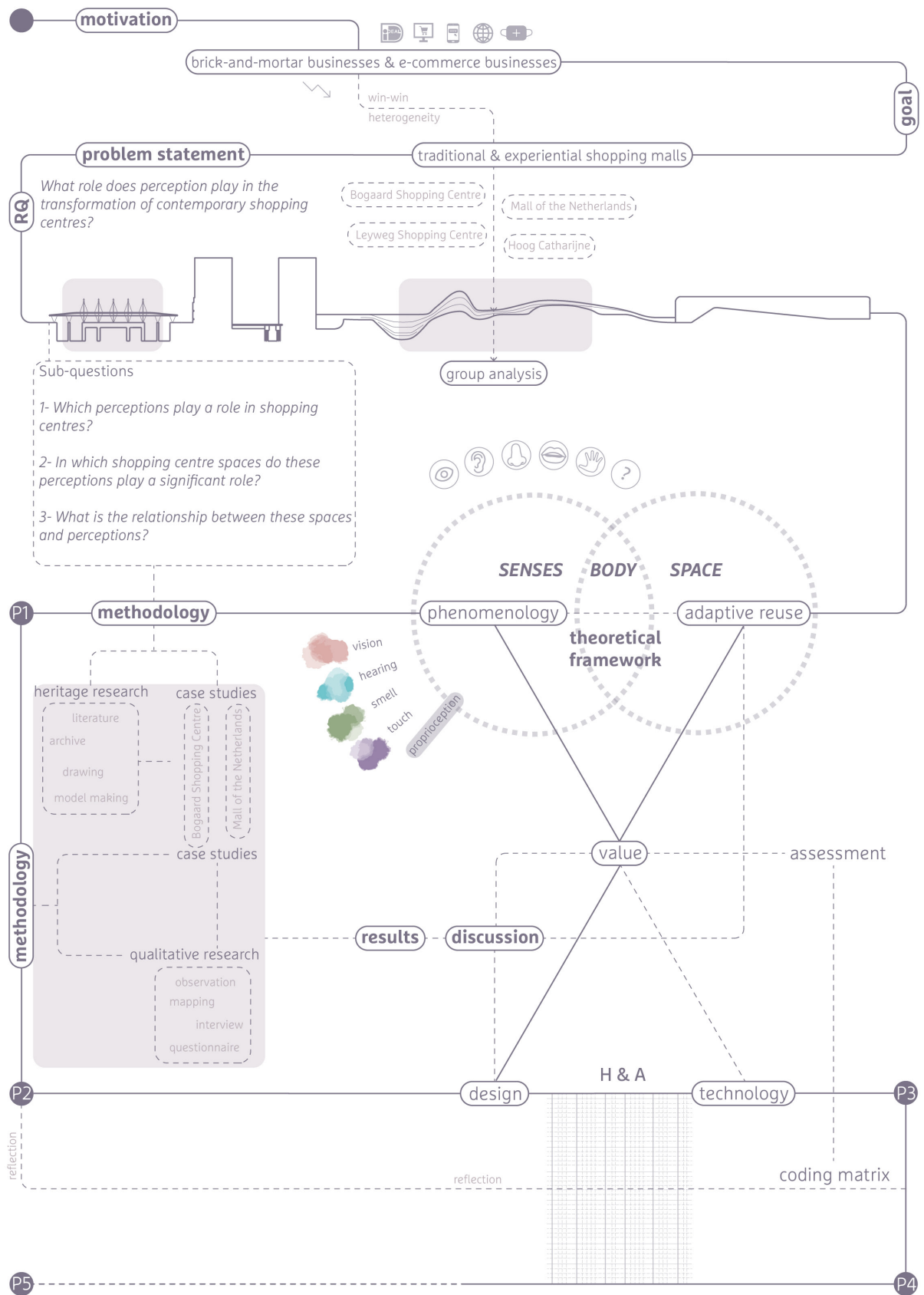
This study focuses on the transformation of contemporary shopping centres. Based on the spiritual needs of people today and the future development of online shopping, I focus on exploring the connection between people's perceptions of shopping centres and social spaces. The previous research explores the connection between people's perceptions of shopping centres and social spaces based on the spiritual needs of people today and the future of online shopping. According to the investigation of social spaces in MoN and Bogaard, the spaces in both malls are enclosed by ceilings, floors, walls and columns, and these architectural elements that make up the spaces can affect people's moods through changes in distance or scale, and their materials together with the interior furniture also work together to create different atmospheres for people's senses. Different social functions require different sizes of spaces and atmospheres, and the above study identifies the scope of different perceptions that can be applied to different scales of spaces in existing shopping centres to create social spaces that meet the needs of the atmosphere.

The results of this study are adapted to existing architectural spaces, confirming the functionality of the space for renovation projects. Smaller, more intimate spaces can create different olfactory and tactile experiences through materials. Larger scales can also be eliminated by balancing the four elements of ceiling, floor, walls and columns, and intervening with furniture to eliminate the feeling of emptiness, and then further enhance the olfactory and tactile experience to increase the intimacy of the space with people. As the Bogaard Shopping Centre is a heritage building with historical significance, the specific intervention method still needs to be verified for

feasibility using the value framework later in the design process.

Today's internet is growing faster and faster, and people consume, communicate and work more and more through screens. This de-bodying has become the future trend. However, this research proves that people can choose more convenient and diverse online shopping methods, but the internet cannot replace the need for face-to-face communication. The rapid development of modern technology since the twentieth century has allowed us to reconnect with our bodies, and technology has liberated our bodies and allowed us to use our senses to connect with the spiritual life that real space brings.

Research Diagram



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Appendix

Bogaard Shopping Centre

1. Select your age group please: *

Please select only one answer

- ☐ 0-14
☐ 15-24
☐ 25-44
☐ 45-64
☐ 65+

2. Select your gender please: *

Please select only one answer

- ☐ Male
☐ Female
☐ Prefer not to disclose

3. Which shopping method do you prefer? *

Please select only one answer

- ☐ Shopping online
☐ Shopping in a brick and mortar store
☐ Other _____

Online Shopping

- ☐ More convenient (save time, avoid shopping fatigue...)
☐ More choices
☐ Cost saving
☐ Avoid social interaction
☐ Other _____

Brick and Mortar Store

5. Select the type of group you belong to: *

Please select only one answer

- ☐ Consumer_Insiders (long-settled locals)
☐ Consumer_Outsiders (tourists, educational visits...)
☐ Staff (work in the Bogaard shopping mall)
☐ Owners

6. How often do you go to Bogaard Shopping Center? *

Please select only one answer

- ☐ Very frequently (at least once a week)
☐ Occasionally (2-3 times a month)
☐ Rarely (once a month or less)
☐ Almost never (less than once a month)

- ☐ Shopping (shop for daily necessities)
☐ Entertainment (movie theaters, arcade games, indoor play areas for children...)
☐ Socializing (meet with friends and family)
☐ Services (convenient services available with banks, post offices, hairdressers...)
☐ Dining (fast food outlets, cafes, restaurants...)
☐ Spending time without purpose
☐ Other _____

Sensory Experience

8. Have you been in this mall before it was renovated? *

Please select only one answer

- ☐ Yes
☐ No
☐ Maybe

9. If you came before the renovation, do you prefer the current mall or the one before? Why?

10. Can you describe the mall in one word? *



Please select only one answer

- ☐ materials/textures
☐ lights/colours
☐ ambient sound/musics
☐ smell
☐ circulation/movement



Please select only one answer

- ☐ materials/textures
- ☐ lights/colours
- ☐ ambient sound/musics
- ☐ smell
- ☐ circulation/movement



Please select only one answer

- ☐ materials/textures
- ☐ lights/colours
- ☐ ambient sound/musics
- ☐ smell
- ☐ circulation/movement



Please select only one answer

- ☐ materials/textures
- ☐ lights/colours
- ☐ ambient sound/musics
- ☐ smell
- ☐ circulation/movement



Please select only one answer

- ☐ materials/textures
- ☐ lights/colours
- ☐ ambient sound/musics
- ☐ smell
- ☐ circulation/movement



Please select only one answer

- ☐ materials/textures
- ☐ lights/colours
- ☐ ambient sound/musics
- ☐ smell
- ☐ circulation/movement

Please select only one answer



Westfield Mall of the Netherlands

- ☐ Yes
- ☐ No
- ☐ Maybe

14 Which mall do you prefer?

Please select only one answer

- ☐ Bogaard Shopping Centre
- ☐ Westfield Mall of the Netherlands