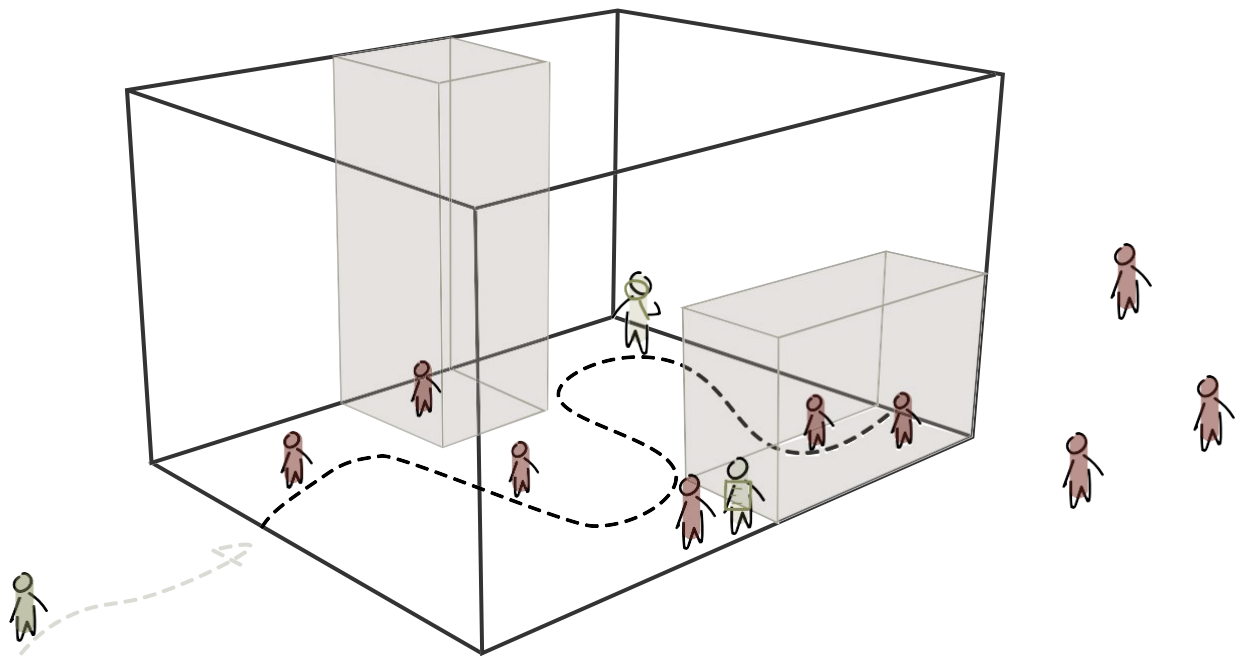


Taking Care of the Mall

The Modern Mall
MSc3+4 Adapting 20th century Heritage



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Content

p. 4	1.	Introduction
p. 5	2.	Definition of Theoretical Framework
	2.1.	Evidence Based Design
	2.2.	Indoor Environmental Quality
p. 7	3.	Problem Statement & Research Question
	3.1.	Problem Statement
	3.2.	Research Question
p. 8	4.	Methodology
	4.1.	Methods
	4.1.1.	Literature
	4.1.2.	Case Studies
	4.1.2.1.	Observation
	4.1.2.2.	Questionnaire
	4.1.2.3.	Literature
	4.2.	Methods in Relation to Research Questions
	4.3.	Combining Methods
p. 11	5.	Research Diagram
p. 12	6.	Goal of Research & Connection to Design
	6.1.	Goal of Research
	6.2.	Connection to Design
p. 13	7.	Argument about Relevance
p. 14	8.	Bibliography

1.

Introduction

During everyday life, you may not realise that the built environment has an impact on you and your wellbeing. But when you spend time indoors for a while and start feeling unwell, it might be because of the spaces around you and the way you experience it. Spatial experience is about the positioning of the built environment, elements and context of the space in relation to the way it affects the user (Spatial, n.d.; Experience, n.d.). The happenings within the space are connected with the emotion of the person within the space (What is a Spatial Experience?, 2020).

Feeling unwell is related to your health and wellbeing. Wellbeing is defined as 'the state of feeling healthy and happy', while health is defined as 'the condition of the body and the degree to which it is free from illness, or the state of being well' (well-being, n.d.; health, n.d.). The WHO defines health as 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (Section 3: Concepts of health and wellbeing | Health Knowledge, 2017).

One of the reasons why people feel worse about built architecture is Sick Building Syndrome (SBS). Various definitions of Sick Building Syndrome are used, but for this research, SBS is defined as a condition in which the building occupant experiences acute non-specific health complaints that appear when spending time within the building, but once leaving the building the complaints start to disappear (Redlich et al., 1997; Passarelli, 2009; United States Environmental Protection Agency, 1991). Occupants can experience

a variety of complaints when spending time within the building, including (mild) upper respiratory symptoms (eye, nose and through issues), headache, fatigue, rash and sensitivity to smell. A building suffers from sick building syndrome when 20% of the occupants experience these health and comfort effects (Passarelli, 2009). Even though SBS can take place in any building, it is commonly recorded in post-war buildings that are mechanically ventilated, have inefficient layouts, inappropriate materials and neglected maintenance. When the symptoms are directly related to the building, it concerns Building-Related Illness (BRI) (Kubba, 2016). It is caused in modern enclosed buildings and the symptoms can vary from fever to muscle aches. Besides the direct link with the building, another difference with SBS is that the symptoms do not necessarily disappear after leaving the building.

The research focuses more on what can counteract these symptoms of SBS and how the environment of a post-war shopping mall can be improved. The research falls under the Heritage and Architecture studio. In the studio, conducting research will explore how the mall became to its current state, determining the values present, investigating interventions and what the mall looks like in the future. The role of a shopping mall is changing due to the advent of online shopping. So during the studio, the importance of the mall will be investigated, including the creation of a comfortable space within it (Heritage & Architecture, n.d.).

Definition of theoretical framework 2.

2.1. Evidence Based Design

Evidence Based Design (EBD) is the knowledge of scientific data about the physical and psychological health impacts on the users, used for the design of spaces in hospital architecture (Alfonsi et al., 2014). It links the research of the influence the spatial elements with the wellbeing of the user of the building (Gelder, 2016). The origin of Evidence Based Design is found at the end of the 18th century, when society and nature were seen together during the Enlightenment (Wagenaar, 2006). They related health to the environment. But by the beginning of the 20th century, this idea of health in relation to the environment came to an end and hospitals turned into functional buildings. However, by the end of the last century, Evidence Based Design began to be used more and is still evolving. When designing according to EBD, healing architecture or healing environments are created where the environment improves the state of the users of the building on physical and psychological levels (Wagenaar, 2006). Healing architecture focuses on how the perception and design of architectural spaces can influence the recovery of patients (Nickl-Weller & Nickl, 2013).

An example of a hospital where the principles of Evidence Based Design have been applied is the Bronson Methodist Hospital in Kalamazoo, Michigan (figure 1). They implemented private rooms, a garden with a pond in the main lobby and intuitive wayfinding throughout the building, which resulted in improved sleep quality of the patients and half the nursing vacancy among other things (Wagenaar, 2006).



Figure 1: The Bronson Methodist Hospital with an indoor garden at the center of the building (Bronson Methodist Hospital in Kalamazoo, Michigan, 2017)

2.2. Indoor Environmental Quality

The Indoor Environmental Quality (IEQ) is about the relation between the (indoor) condition of the building and the health of the user. The building industry is becoming aware of the impact of the health hazards that a building can have (Kubba, 2016). Since the end of the last century, it is realised that creating a healthy environment creates healthier and happier people. Within working environments, like schools and offices, poor IEQ can make it difficult to learn, be productive and can cause health problems. The IEQ is divided into multiple factors, physical or non-physical: airborne contaminants; indoor air quality (IAQ); ventilation; humidity; thermal comfort; daylight, lighting and views; electromagnetic frequency levels; and acoustic conditions (Abdulaali et al., 2020). The main cause of indoor pollution and poor indoor air quality inadequate ventilation and inefficient filtration (Kubba, 2016).

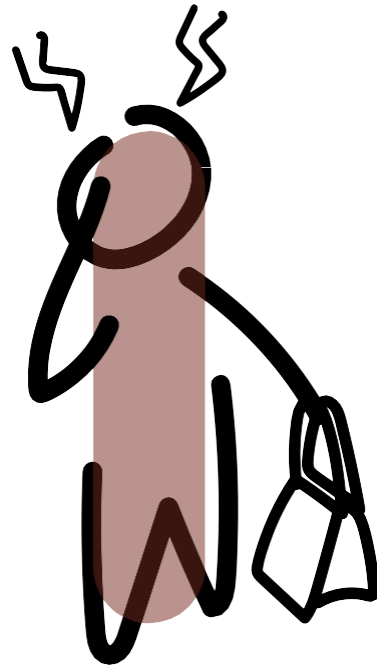
Problem statement & Research question

3.

3.1. Problem Statement

People spend about 85 to 90% of their time indoors and then predominantly at home by 70% (Health-based guideline values for the indoor environment, 2008). People who work full-time in an office are inside an office space about 20% of the time (Norbäck, 2009). That means it is important that the conditions in the building are of good quality and do not cause health issues. In an indoor mall, it should be no different. The time spent in an indoor mall is in addition to the hours spent indoors.

Getting a headache in the indoor mall after a day of shopping might sound familiar to some and according to the Sick Building theory, several people suffer from it and other health issues that come with it.



3.2. Research Question

How to improve human wellbeing through the spatial experience of a shopping mall?

- What physical elements are present in a shopping mall?
- What physical elements of architecture affect the human wellbeing?
- How do visitors of the mall experience the physical elements of a mall's architecture?

4.

Methodology

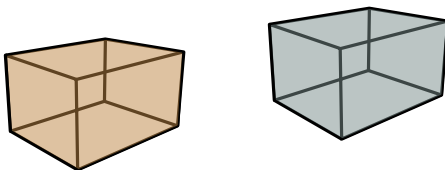
To be able to answer the main question and the sub questions several methods will be used. First of all, literature will be used as a method, to provide academic information on the topic of research that has already been done. Secondly, observations and questionnaires are conducted using two case studies.

4.1. Methods

4.1.1. Literature

To begin with, literature will be the main input to the study. Information on the elements of the building of a shopping mall will be sought from the available literature. All the information will create a platform for further investigation and will help with designing a questionnaire and directs the way for observation. In the theoretical framework, a begin is made for the research as a foundation for the actual research.

4.1.2. Case Studies

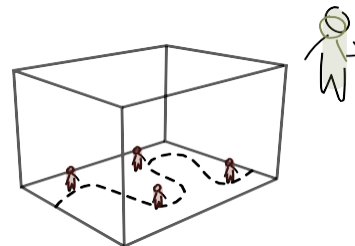


The case studies are the Oranjerie in Apeldoorn and Hoog Catharijne in Utrecht (figures 2 & 3). These shopping malls are chosen since both shopping malls are covered with a controlled indoor environment and are based within the city center. Within the last 10 years, both malls underwent a complete renovation to improve the spaces. Despite the similarities, there are also several differences. First, the size of

the malls. Hoge Catharijne has almost 160 shops and about 107,000 m² of lettable retail floor space, while the Oranjerie has about 60 shop premises and covers 20,000 m² (Hoog Catharijne: BREEAM Gecertificeerd, 2020; Winkels & Restaurants, n.d.; Winkelcentrum Oranjerie, 2021). While the Oranjerie is mainly focused on shopping, Hoog Catharijne also includes more restaurants. Figures 1 and 2 show the main square of the shopping malls.

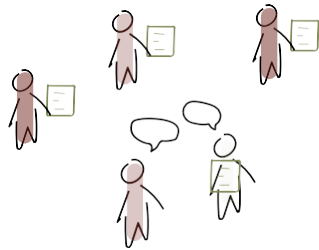
Within those two malls, multiple methods will be applied to be able to answer the questions for the research:

4.1.2.1. Observation



During the visit to the mall, there will be looked at as well human behaviour, as the physical elements present. The way people use different spaces, might indicate the preferred elements. Crowded spaces could have other implementations of the elements than quiet spaces. Observing the usage of spaces and areas might make it possible to find out what works and what doesn't. By drawing and photographing spaces and people's behaviour, observations are captured. This can later be used to draw conclusions or compare them with other sources of information.

4.1.2.2. Questionnaire



Using a questionnaire can give insides into how visitors experience the mall and what the importance is of the elements for them. How long do they stay inside, what is the reasoning for their visit, how do they perceive specific physical elements of the mall and other questions will be asked. The answers should give a better understanding of how the mall is used by different people.

When asking about the experience of mall users, the privacy and wishes of the interviewee will have to be taken into account. Permission will be sought beforehand and the data will not be made public.

4.1.2.3. Literature



For designing the questions for the questionnaire, fundamental knowledge is needed. It gives insight into what elements are present at the specific malls. But can also provide information about the history or context of the shopping mall.



Figure 2: Main square of shopping mall de Oranjerie in Apeldoorn (Own material)



Figure 3: Main square of shopping mall Hoog Catharijne in Utrecht (Own material)

4.2. Methods in Relation to Research Questions

- What physical elements are present in a shopping mall?

Literature – Looking through the literature, information about physical elements in a mall can be found. In the case of the case studies, specific information about the physical elements present can be mapped.

Observation – When visiting the shopping mall, with the use of observation, physical elements can be documented and measured.

- What physical elements of architecture affect the human wellbeing?

Literature – Multiple pieces of research have been done on the effect of physical elements on human health (see theoretical framework). Collecting this information can provide insight into the effect of the elements

- How do visitors of the mall experience the physical elements of a mall's architecture?

Questionnaire – With the help of the literature study that will be done and answers given to the other two sub questions, a questionnaire can be made to ask people about how they feel in the mall.

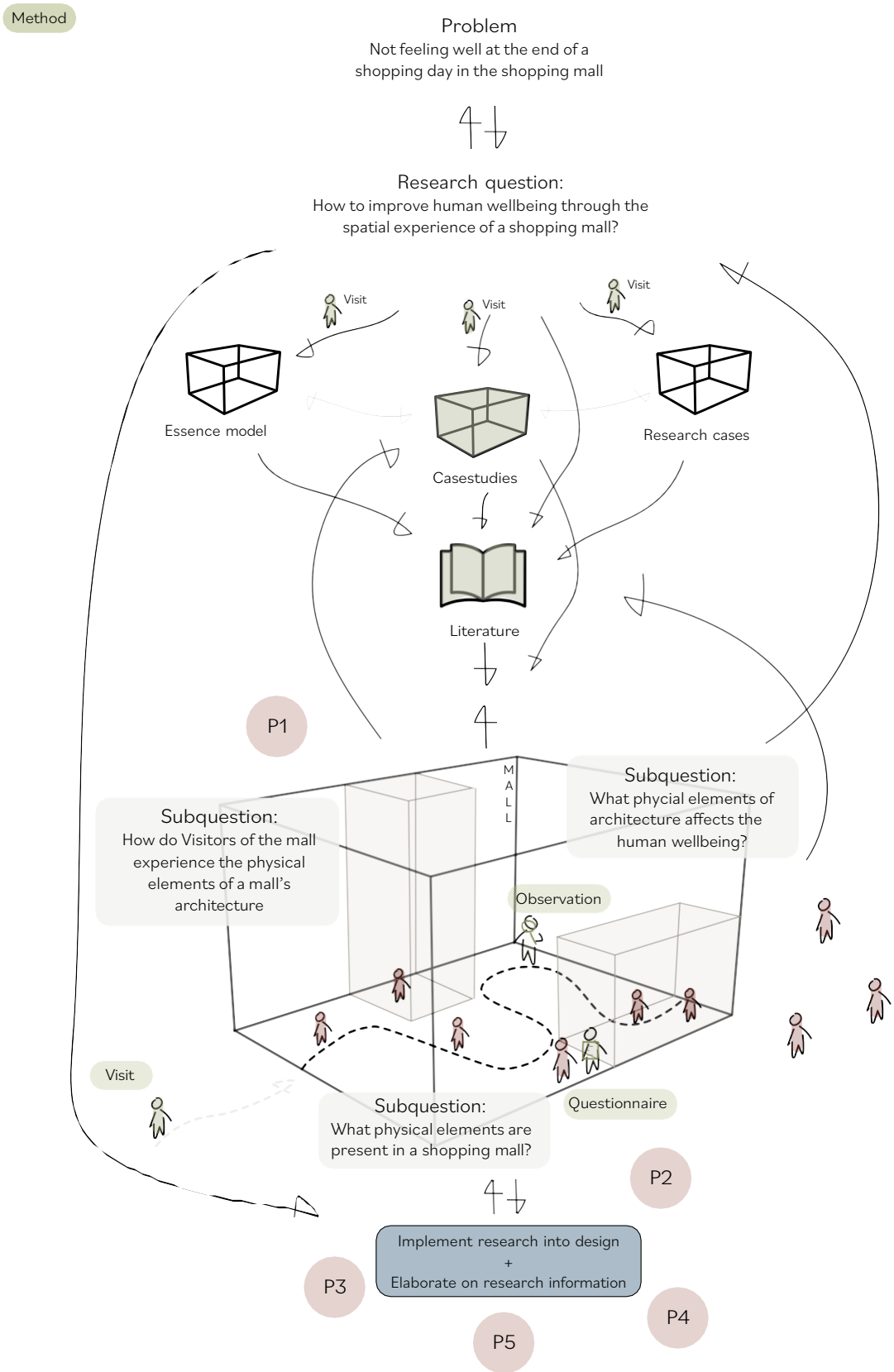
4.3. Combining Methods

Together, all methods will be combined to answer the questions and also provide solutions to the questions. This can be done by (possibly) comparing the answers of the case studies and seeing if the same problems arise or if there is a difference. Then solutions can be found in both the literature and one of the case studies that do not have the same problem, maybe they have already found a way to change it. It would be interesting to find out why they differ. In the end, the solutions can be applied to the design case. The data collected will provide insight into the strengths and weaknesses of the design case and how it can be developed into a comfortable space.

What adjustments have been made to the mall and are related to human wellbeing. Has the attitude towards health changed over the years? These are questions that will be taken into account when adding value to the mall.

Research Diagram

5.



6. Goal of Research & Connection to Design

6.1 Goal of Research

The research aims to create a better understanding of what physical elements are present in the shopping mall and how they can be used to create a space beneficial for the human wellbeing. Therefore for understanding this, the results of the research will be translated into an overview of physical elements present in a shopping mall with an explanation of the effect of these elements on human health.

The results of the research will then be translated into interventions for a redesign of a shopping mall. One post-war shopping mall in the Netherlands will be chosen as the design case, which will then be used for the interventions to improve the building. This design case will be de Oranjerie in Apeldoorn, due to the covered space, the location in the city center and the function as a recreational shopping mall where people could spend over an hour.

6.2 Connection to Design

Before interfering with the building, the values and qualities of the design case will be identified. The values people give to the physical elements present in the mall are compared with the research done on the desired physical elements and their implementation. This gives an insight into the current situation and what needs to be changed about the building to create a pleasant space.

With the research Evidence Based Design and the principles of Indoor Environmental Quality will be combined and applied to an already existing building. The IEQ gives information about the elements available and how they affect human wellbeing. With a combination of EBD, they can create solutions for the mall to improve human wellbeing through the spatial experience.

Argument about Relevance 7.

Spaces influence the health of a person. So walking around in a shopping mall can affect the wellbeing of a person. Studies have shown that these effects can result in health related issues (Kubba, 2016). Even though most people don't spend their time in a mall every day, still it does affect your health and the rest of your day.

There are several articles published about the importance of IEQ and EBD, but most are researched on primary schools, homes, universities, offices and others (Kubba, 2016; Wong et al., 2009; Korsavi et al., 2020; Boubekri et al., 2014). Evidence based design is even developed for the improvement of

hospitals and not for different types of buildings (Wagenaar, 2006). When doing this research, more information will be found for the specific case of a shopping mall. While people spend quite some time at home and work, they might spend less time in the shopping mall (Health-based guideline values for the indoor environment, 2008; Norbäck, 2009). The information collected will provide more insight into the experience of physical elements in a shopping mall.

While searching for information on applying EBD when using heritage interventions, few results emerged. The research could provide more information on this.

8.

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