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EXPERIENTIAL QUALITIES IN ARCHITECTURE

ABSTRACT

Our surroundings have an affective impact on us. We are all familiar with the phenomenon that an environment affects the way we feel. It even comes as natural to us to recognize experiential qualities of places and spaces that surround us. This recognition isn't based on analytic reasoning or abstract knowledge but results from an immediate, direct apprehension of reality. Still, despite its familiarity in daily life, experiential qualities are generally a peripheral topic in modern and contemporary Western architecture and systematic or explicit knowledge on the subject seems to be largely lacking. This surprising gap in knowledge not only shows in architectural design practice, but also in architectural research, academic education and in reviews on architecture.

This research addresses the experiential blind spot in architecture. It aims to contribute to an improved understanding of the nature of experiential qualities of architecture, with the intention to clarify what role experiential qualities can play in architectural design and in assessing architecture. Consequently, and due to its exploratory nature, the research approaches the topic from three different but related perspectives: a theoretical perspective, a design perspective, and a user perspective.

Although the perspectives mutually overlap and have evolved more or less simultaneously, they are presented one after the other in this dissertation.

Chapter 1 outlines the context of the problem and explains the general intention and approach of the research.

In chapter 2, a preliminary theoretical framework on experiential qualities of architecture is conceptualized, based on existing literature from diverse disciplines. By critically assembling related concepts, theories and findings, the nature of the topic is examined and our -culturally grounded- conception of it is analysed. This part of the research exploratively investigates contemporary perspectives and questions covert assumptions in order to identify characteristics that mark the core of the phenomenon.

Chapter 3 focusses on the perspective of the designing architect as producer of a spatial environment. It exploratively examines the lack of systematic or explicit knowledge for addressing experiential qualities during architectural design processes. Firstly, architecture discourse is searched for reports of design processes that to some extent incorporate experiential qualities as a conscious focus. Secondly, the cases of Steven Holl and Peter Zumthor are

studied. In addition, architectural design processes are closely observed as they happen. To this end, a graduation studio in architectural design was set up at the faculty of design sciences at the university of Antwerp.

In chapter 4, spatial experiences are examined as they occur, from the perspective of the experiencing subject. It reports on applied empirical research, based on a course unit for master students in architecture that examined multi-subjective perspectives on several recent buildings in Flanders. This part focusses on collecting and analysing first-person descriptions of architectural experiences. The results from the analysis are then compared with more or less similar ideas and concepts in architecture and related disciplines with the aim to identify essences and characteristics of experiential qualities of architecture.

At the end of each chapter, the main findings are summarized.

In chapter 5, I look back on some of the important aspects of the research. The general approach and the research trajectory are evaluated, the main research findings and their potential value for architecture are assessed, and some recommendations and possibilities for subsequent and related future research are suggested. Along the way, I also try to answer the following question by Robert Irwin: "Is the moment of perception –that first moment, before all the abstracting, conceptualizing processes that follow- is that moment closest to or furthest from the real?" (Weschler, 2008, p.259).

SAMENVATTING

De omgeving heeft een invloed op ons: wij kennen allemaal het fenomeen dat een omgeving mee bepaalt hoe we ons voelen en gedragen. Het lijkt vaak bijna vanzelfsprekend dat we belevingskwaliteiten ervaren en kunnen onderscheiden van plekken en ruimtes waar we ons in begeven. Die vaardigheid is niet gebaseerd op analytisch denkvermogen of op abstracte kennis maar komt voort uit een onmiddellijk, direct begrijpen van de realiteit, dat ik hier benoem als een affectieve invloed. Met andere woorden, onze omgeving raakt ons. Ondanks de vertrouwdheid van onze dagelijkse omgeving, zijn de ruimtelijke belevingskwaliteiten meestal niet meer dan een bijkomstig thema in de hedendaagse westerse architectuur: systematische of expliciete kennis over het thema lijkt grotendeels te ontbreken. Dit verrassende gebrek aan gestructureerde kennis toont zich niet enkel in de architecturale ontwerppraktijk, maar ook in architectuuronderzoek, in het architectuuronderwijs en in architectuurkritiek.

Dit onderzoek richt zich op het gebrek aan kennis over beleving in architectuur. Het heeft als doel om bij te dragen tot een beter begrip van de aard van belevingskwaliteiten van architectuur, om zo meer duidelijkheid te scheppen welke rol deze kwaliteiten kunnen spelen in het ontwerpen en beoordelen van architectuur. Bijgevolg, en ook door zijn exploratief karakter, benadert dit onderzoek het thema vanuit drie verschillende maar verwante perspectieven: een theoretisch perspectief, een ontwerp(ers)perspectief, en een gebruik(er)sperspectief.

De verschillende perspectieven zijn tijdens het onderzoek min of meer gelijklopend geëvolueerd. In dit proefschrift worden ze apart en na elkaar behandeld ondanks de overlap, om de scherpte in analyse te kunnen behouden.

Hoofdstuk 1 schetst de context van het probleem en beschrijft de algemene doelstellingen en aanpak van het onderzoek.

In hoofdstuk 2 wordt een inleidend theoretisch kader rond belevingskwaliteiten van architectuur opgebouwd, gebaseerd op bestaande literatuur uit verschillende disciplines. Door het kritisch samenbrengen van aanverwante concepten, theorieën en bevindingen wordt de aard van het thema onderzocht en onze cultuurgebonden denkbeelden erover geanalyseerd. Dit deel van het onderzoek bestudeert en bevraagt een aantal hedendaagse perspectieven en de bijbehorende vooronderstellingen om die karakteristieken te achterhalen die de kern van het fenomeen vormen.

Hoofdstuk 3 focust op het perspectief van de architect als ontwerper van een ruimtelijke omgeving. Het onderzoekt het tekort aan systematische of expliciete kennis om om te gaan met belevingskwaliteiten tijdens architecturale ontwerpprocessen. Als eerste wordt architectuurtheorie doorzocht op zoek naar beschrijvingen van ontwerpprocessen die in zekere mate gekenmerkt worden door een bewuste focus op belevingskwaliteiten. Ten tweede worden de casussen van Steven Holl en Peter Zumthor bestudeerd. Bijkomend worden lopende architecturale ontwerpprocessen geobserveerd. Daartoe werd een afstudeerstudio architectuurontwerp opgericht aan de faculteit ontwerpwetenschappen aan de Universiteit Antwerpen.

In hoofdstuk 4 worden ruimtelijke belevingen onderzocht zoals ze in werkelijkheid plaatsvinden, vanuit het perspectief van de gebruiker. Het brengt verslag uit van toegepast empirisch onderzoek, gebaseerd op een opleidingsonderdeel voor masterstudenten architectuur waarin bestaande gebouwen in Vlaanderen bestudeerd werden vanuit conceptueel en perceptueel perspectief. Dit deel focust op het verzamelen en analyseren van persoonlijke beschrijvingen van architecturale belevingen. De resultaten van de analyse worden dan vergeleken met gelijkaardige ideeën en concepten in architectuur en aanverwante disciplines om zo essenties en kenmerken van belevingskwaliteiten van architectuur te achterhalen.

Aan het einde van elk hoofdstuk worden de belangrijkste bevindingen samengevat.

In hoofdstuk 5 reflecteer ik op een aantal belangrijke aspecten van het onderzoek. De algemene benadering en het onderzoekstraject worden geëvalueerd, het mogelijke belang van het onderzoek voor architectuur wordt ingeschat, en sommige aanbevelingen en mogelijkheden voor verder onderzoek worden geduid. Ook probeer ik een antwoord te formuleren op de volgende vraag van Robert Irwin: "Is het moment van perceptie –dat eerste moment, voorafgaand aan alle abstraherende, conceptualiserende processen die volgen- is dat moment het dichtste bij of het verste af van de werkelijkheid?" (Weschler, 2008, p.259)

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PREFACE

Studying theatre sciences at the Antwerp University in 2008, I interviewed Johan Daenen for my master thesis on his scenographic works. He is a well-known painter and one of the most influential scenographers in Belgium since he started designing sets in the 1980's. Since I also designed the odd theatre set next to my work as a self-employed architect –and having had Johan Daenen as a teacher in scenographic design some years earlier- he readily agreed to cooperate with my research. But, being not exactly talkative and more than slightly enigmatic, Johan Daenen proved a challenge to interview. Flipping through some pictures of his work, he showed me the first set he made: it was for Jan Decorte's play 'Torquato Tasso' and it consisted of huge movable painted plastic screens. Being baffled by the image, I asked him to explain the design. He told me the design brief consisted of a single word: marble. But using real marble was too expensive, too heavy and too complicated technically.

“And real marble wouldn't have been effective on stage either. That is why I have worked on plastic screens. Because of their gloss. And to make it look like marble, I painted like Pollock. Because it is on plastic and because you see that it is on plastic, that you feel that these are not real marble plates or that it is painted on wooden screens, it is once more a kind of transposition from marble to a stage. You see that it is not marble, but inside you must feel marble. But you have to see something else: in this case three shapes. And you must feel marble, but you are not supposed to recognize it. Although you probably do later.”

After pausing, he added: *“A scenography is always successful or failed, there is no middle ground. If a set is put on stage and you look at it, emotions do come or they do not.”*

His explanation, weird as it was, made sense to me. Years before, in 2002, I had seen Jan Decorte's staging of 'King Lear' in a set designed by Johan Daenen. The scenography was at the same time brutally primeval and sublimely minimalistic, it clashed with and elevated the actors' performances, and it offered no clues about time or location but tightly framed the action. There was no sensible way to understand the design, yet - after about half an hour into the play- it felt absolutely right.

The experience had made me realize Johan Daenen is not primarily interested in designing exquisite stage objects that function as a setting for the play. Rather, he aims to create images or environments that attune the spectators

to, and sometimes also against, the action. He manipulates objects to establish conditions that evoke –or at least afford– a certain feel or mood. And though they wouldn't look out of place in any museum of contemporary art, his scenographies require the actors' performance and the affective responsiveness of the spectators to achieve their atmospheric potential.

This awareness seemed obvious the moment I grasped it, and it applied (and still applies) to the greater part of contemporary scenography. It had also made me understand why I could easily become passionate about theatre, while I seldom became more than appreciative about architecture. Theatre could be a moving experience: exciting, troubling, distressing, delighting, confusing. But architecture almost never was, or at least not to the same degree, neither as a practitioner nor as a user/spectator. Being occupied day-to-day with building regulations, construction processes, clients' demands and managing my own agenda, there was little room left to focus on something vague like 'atmosphere' or 'mood' –which nobody asked for anyway. Besides, I was never taught nor had ever come across information on how to address this issue as an architect or as a user/spectator of architecture. It seemed like the architectural profession couldn't be bothered.

Slowly however, things appeared to change. Maybe because it was there all along and I just became more perceptive to it, like when you only start noticing a certain product once you purchased it yourself. But perhaps something was and is actually changing in architecture. Pallasmaa's book 'The eyes of the skin' (2005) became hugely popular. Peter Zumthor was chosen as the 2009 Laureate of the Pritzker Architecture Prize. In 2014, the Royal Academy of Arts in London tasked seven architectural practices to address experiential qualities of architecture for the exhibition 'Sensing Spaces: Architecture Reimagined'. Also in Belgium, small clues hint at a changing focus in architecture. In the 2008 edition of the Flanders Architectural Review, the editors describe the selection criteria for the published projects as: the buildings' capacity to facilitate use, their image value, the inventivity of the design, building logic, and attention to and quality of execution. Four editions later (2016) Christoph Grafe writes: "The Architectural Review is founded on the assumption that architecture can play a fundamental role in the achievement of the good life, and that it can create spatial possibilities and conditions that give shape to our communal existence. That it summons up or represents certain visions for a good society, as both a reality and as a concrete utopia. And, to express it with a degree of pathos, that architecture creates environments where we can

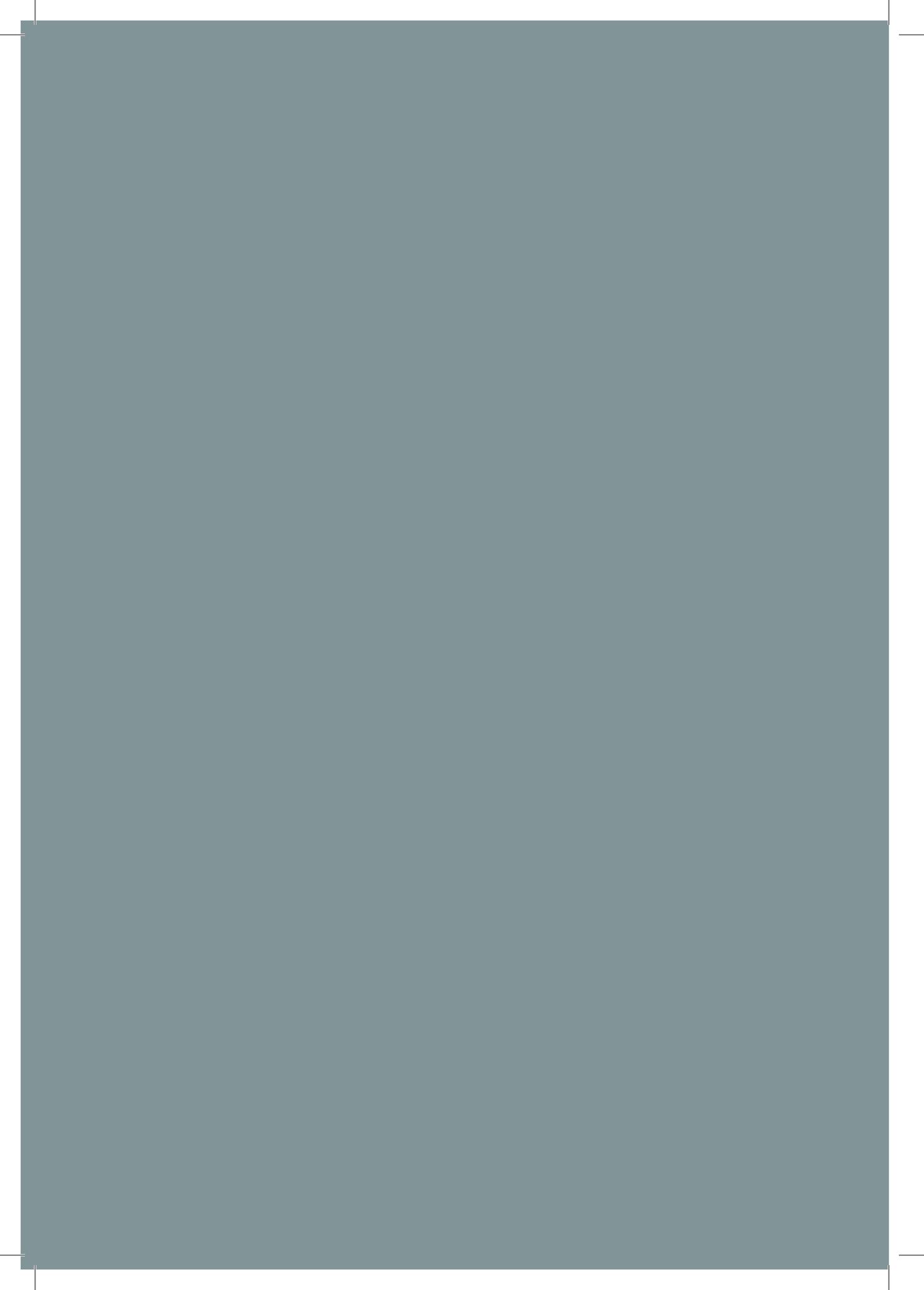
feel good together.” (Jaarboek Architectuur Vlaanderen n°12, p.5)

This shift of attention towards experiential qualities in architecture may seem paradoxical in a society and an age characterized by globalization, virtualization and increased commodification of about everything social and cultural. But although these conditions are changing our way of living, they do not cancel out the fact that we are physical and emotional beings in a physical world. Actually partying at Tomorrowland easily eclipses watching its Youtube Channel (or so I have been told). And it remains likely that most people will rather tell their friends stories about cruising Tuscany on a Vespa than about seeing it on Google Street View. So the changing focus in architecture, which among others shapes our physical environment, may not be so surprising after all. Ofcourse our world has seen the rise of globalized and highly commodified architecture practice. Also in Antwerp we have some prime examples of starchitects’ blockbuster buildings that mainly provide excellent Instagram opportunities. But –inversely proportional to their media coverage- they are the exception, not the rule. A large part of architecture practice does indeed aim to accommodate ‘the good life’. In fact, so do some of the corporate architecture brands. After all, it is every building’s fate –regardless of its conception, history, and current status- that people will enter it, use it, appropriate it. It is highly unnatural for people not to relate to their physical environment, of which architecture forms a substantial part. So an increasingly technologized society and attention to experiential qualities in architecture are not mutually exclusive. On the contrary, the former seems to trigger a heightened desire and demand for the latter.

When I started teaching architectural design at the Antwerp University in 2008, I learned not only architecture practice was shifting focus but so was architecture education. During my own education as an architectural designer, we mainly discussed programmatic issues and image value (or at least that ‘s how I interpreted it). Returning fifteen years later to the same institution, these topics still stood strong but were gradually complemented by a more phenomenological perspective. Still, I also noticed –and experienced firsthand- how elusive experiential qualities can be, especially in an educational context. There are no paradigmatic handbooks and no generally recognised approaches or paths to teach students how to address experiential qualities in architecture. There is not even general consensus on what ‘experiential qualities of architecture’ precisely stands for. And the increasingly juridical teaching environment doesn’t help either. Nevertheless, the topic is slowly but steadily gaining increased attention in architecture education, from both teachers and students.

So when my faculty provided the opportunity to apply for a doctoral research project, the topic came easily. Crafting a proposal, devising a strategy and carrying out the research proved more challenging. Firstly because I did not have any training in nor experience with academic research. And secondly because there were no precedents of PhD trajectories in architecture at the Antwerp University. Nobody could provide me with knowledge on how to proceed and even remotely analogous references were scarce. Resultingly, the research project also became an exploration of architectural research methods, and of the sense and sensibilities of academic architectural research. This aspect will be commented upon occasionally throughout the dissertation and may also show through its overall eclecticism.

1. introduction



Our surroundings have an affective impact on us. We are all familiar with the phenomenon that an environment affects the way we feel. It even comes as natural to us to recognize experiential qualities of places and spaces that surround us. We say of places that they possess a particular character, emanate a mood, have a distinctive feel or are tuned in a certain atmosphere. And although the cause and nature of the phenomenon is often indeterminate and diffuse, in everyday life, environments are easily described as gloomy, tense, cheerful, melancholic, serene, cosy, inviting. This recognition isn't based on analytic reasoning or abstract knowledge but results from an immediate, direct apprehension of reality. It is an intuitive, spontaneous knowledge that finds its origin in a physical, sensory-emotional way of encountering reality. Remarkably, it seems to be a part of people's ability to know reality that we cannot control. We can be surprised by the character of a room, be overwhelmed by the mood of a landscape or be amazed by the feel of a street. Sometimes we struggle with the atmosphere of our surroundings, especially when it contrasts with our own mood. Arguably, despite its vague and intangible cause and nature, in everyday life the affective impact of a place is one of the most important factors in our valuation of the spaces we encounter. It is often the main reason we grow fond of a place or, from a different perspec-

tive, what gives a place its identity and personality.

Also in architectural practice, which main purpose is to shape our environment, experiential qualities of places and spaces are not a foreign factor. Few architects would take it as a compliment if their creation leaves its users completely indifferent. So in architectural practice, regardless of style or typology, most designers are at least slightly concerned about the affective impact of their spatial constructions. And since architects not only design but also use and experience space in their daily life, they are inevitably familiar with this perspective.

1.1 PROBLEM STATEMENT

Accordingly, it would seem obvious that this phenomenon has been extensively studied by architects and plays a major role in architectural practice. This is hardly the case. In modern and contemporary Western architecture, the topic is at most a peripheral one and systematic or explicit knowledge on the subject seems to be largely lacking. Despite its importance and its familiar character, the experiential dimension of space is seldom explicitly recognised as a decisive factor in the design process and has scarcely been researched in architectural practice. At best, it is dealt with intuitively, based on personal experiences and interests of the designer.

The focus on experiential qualities in Western architecture must have been lost somewhere in the 20th century, since it was still alive and well in the 19th century. Leading figures of 19th century architecture discourse such as G. Semper, A. Pugin, J. Ruskin, H. Wölfflin, A. Schmarsow advocated a psychological or anthropological approach on architecture. It also shows –among a variety of other interests and influences– in the architecture of influential practitioners like R.N. Shaw, C.R. Mackintosh, V. Horta, H. Guimard, J. Hoffman, J.M. Olbrich. (Rykwert, 1981; Van Eck, 1994; Böhme, 2006; Frampton, 2007) The experiential focus however got crushed by the social-cultural trauma of the first industrialized war. In the 20th century it only occasionally and seemingly randomly pops up, to be wrecked again by the effects of World War II and again by the cultural impact of the digital revolution. And despite the fact that some of its temporary manifestations have resulted in canonical buildings (eg. Frank Lloyd Wright's Falling Water, 1936; Le Corbusier's La Tourette, 1960; Louis Kahn's Salk Institute, 1965; Carlo Scarpa's Brion Cemetery, 1978), only in Scandinavian architecture have experiential qualities been a solid, although implicit, focus in architectural practice throughout the 20th century (eg. G. Asplund, A. Aalto, S. Lewerentz, K. Fisker, J. Utzon).

So the current neglect appears as relatively recent and atypical for architecture. Or as Böhme writes: "Only temporarily and under certain (extreme) temporal constellations can it (architecture) focus on the object side, in the belief that it is actually buildings which it is tasked to make." (Böhme, in Havik, 2013, p.21)

The experiential blind spot in contemporary architecture can indeed to some extent be attributed to extreme events in the 20th century, and partly also to the unpredictable and vague nature of the experiential dimension of space.

Other reasons however lie within the nature of contemporary architectural practice. Firstly there is the inherent increasing complexity of architectural practice. Built architecture has always resulted from a tangle of many, often unstable and interdependent, factors: budget, building codes and regulations, client's intentions, safety, climate, timing, program, site, tectonics (cf. Till, 2009). But since a few decades, operating conditions have snowballed. Accordingly, an ever increasing part of architectural design processes is occupied by factors seemingly unrelated to the experiential qualities of its resulting buildings. Secondly, there is the architect's perspective on space. While the user copes with actual existing space, the architect as designer has to deal with not-yet-existing, imaginary and thus conceptual space (cf. Lefebvre, 1991). Since the nature of architectural space is abstract, so is the architect's focus on spatiality: it is primarily a matter of geometry, of physical extend- edness. Whether space is devised as 'topos' (place) or as 'spatium' (distance), in both concepts the focus remains the space of geometry, with the architect inscribing extensive or constrictive structures into it. For all its variations, the architect's task remains to work on physical structures in which things are located and through which bodies move. In brief, the user mainly deals with subjective external properties of space, the architect primarily with quantitative internal ones (cf. Hill, 1998). The architect's perspective thus disfavors non-quantifiable and subjective factors.

Beside in architectural practice, the scarcity of explicit knowledge on the subject is also manifest in other areas of architecture, particularly in architectural research, in academic architectural education and in reviews on architecture.

Although the phenomenon has recently gained interest by a rapidly growing number of architectural researchers (e.g. Chelkoff, 2010; Griffero, 2014; Havik, 2013; Herssens, 2011; Mallgrave, 2013; Pallasmaa, 2005), it is clear that the research is still in its infancy. This is not surprising since the domain of architecture in general lacks tradition to address non-quantifiable matters with scientific methods and techniques. While there have been attempts to scien-

tifically address and understand (spatial) experience by architectural -or architecture related- researchers (eg. K. Melnikov at VKhUTEMAS; Moholy-Nagy at the Bauhaus; J. Albers at Black Mountain College; R. Irwin and J. Turrell at NASA), they mainly focused on visual experience. Also, none of these attempts surpassed the experimental stadium or was followed up sufficiently to result in generally accepted architectural methods or techniques.

Moreover, the question of how one experiences the built environment can be situated within the larger context of the problem of consciousness, which itself has not left the pre-paradigmatic phase yet. In many of the academic fields which study consciousness, the explananda still remain undefined: it is not exactly clear what it is that has to be explained. The questions of what would be the subject and aim of this area of research have not yet been convincingly answered (Metzinger, 1995). Consequently, scientific studies on consciousness in general remain highly explorative and speculative.

The deficiency of knowledge also shows in academic architectural education. In theoretical courses, due to the lack of an adequate framework of theoretical references, the topic is eclipsed by more abstract, quantifiable and often self-referential factors. Also in design studio's, the topic is dealt with awkwardly. Since architectural students mostly produce representations of architectural intentions and not real artefacts (as do architects, cf. Allen, 2009), the affective impact of their designs can never be tested. It can only be subjectively imagined, based on personal -and thus largely dissimilar- experiences of the teacher and the student. Although it can be argued that individual and situational differences tend to be moderated by intersubjective values and tendencies (Franz, 2005, p.54-56), this situation leaves much room for speculations. Due to insufficient systematic knowledge to frame these speculations, arguments about experiential qualities easily become highly disputable. As a result, they are seldom addressed explicitly as a design criterion in architectural education.

In accordance with architectural practice and academic education, reviews on architecture -expressed mainly through publications- tend to suppress experiential qualities as a criterion to assess architecture. The large majority of critical writings on architecture prioritises conceptual, physical or quantifiable aspects (e.g. Eisenmann, 2008; Frampton, 2007; Radford, 2014; Unwin, 2010). Hence the dominance of concepts, style, form and technique in the usual discussion of architecture, and with this the inhibition to methodically discuss the experiential qualities of buildings. Reviews usually consider built architecture as a physical structure with quantitative properties, largely negating its experiential qualities.

1.2 RESEARCH QUESTION & INTENTIONS

Based on such observations, the general direction for this research was born: the wish to somehow contribute to building up a body of knowledge concerning experiential qualities of architecture. This research aims to contribute to an improved understanding of the nature of experiential qualities of architecture, with the intention to clarify what role experiential qualities can play in architectural design and in assessing architecture.

This general intention immediately raised some questions.

- What does 'experiential qualities of architecture' mean exactly?
- What knowledge has already been generated and what is still missing?
- What role do experiential qualities play in the assessment of architecture and can it be improved or enhanced?
- What role do experiential qualities play in designing architecture and what kind of knowledge can help improve the architectural design process, without impoverishing or constricting it?
- How to construct or generate this knowledge?

Based on the first two questions, the development of a provisional theoretical framework seems to be a logical and indispensable first task. Even if it would turn out to be too far-reaching to theoretically capture or explain the components, structure and mechanisms of experiential qualities in architecture, conceptualizing a theoretical framework should at least result in preliminary definitions and delimitations that allow structuring and specifying the general direction of this research. It should deepen our grasp of an architectural phenomenon that is extremely familiar yet we do not understand.

Initial literature research quickly showed that only bits and pieces about the topic could be found in architecture discourse. As mentioned, the majority of critical writings on architecture prioritises conceptual, physical or quantifiable aspects. And the ones that do focus on experiential qualities, tend to be either hermetic to architects or present a judgmental and/or directive view. Georges Perec's *Espèces d'espaces* (1974) contains a marvelous collection of literary essays and wordgames on lived space, but hardly deals with architecture. Bachelard's *The Poetics of Space* (1994) is as much an inquiry on poetry and a study of phenomenological methodology as it is a book about spatial experience. Pallasmaa's writings (2005, 2009) predominantly argue against the dominance of vision in contemporary architecture and press the importance of the other senses.

As a consequence of the apparently fragmented or vague nature of existing

knowledge in architecture, the development of a theoretical framework requires an exploration of concepts from other disciplines on their potential input to the scope of this research. In particular recent developments in perceptual psychology, neuro- and cognitive sciences, and phenomenological philosophy appear to offer a promising potential.

Framed by the theoretical research, the questions of assessment and design are approached separately and from different perspectives. Although related, they constitute different facets of the research topic and require differently tailored research methods.

The intention of these parts of the research is not to criticize contemporary practices of architectural assessment and design. Nor do they aim to formulate rules or methods for architectural success regarding its experiential qualities. Each part firstly aims to expose and clarify a particular facet, generating more or less specific knowledge about and understanding of the nature of experiential qualities of architecture. Only subsequently –if possible and always with cautiousness- do the respective parts aim to suggest possible principles or recommendations on which to base speculation and innovation in architectural assessment and design.

The last question obviously points to finding or developing a suitable methodology and methods to explore the previous questions. Additionally, it applies to my position and role(s) as a researcher.

Since experiential qualities are by definition subjective and their actuality requires the presence of an affective and immersed person (see 2.1 Spatial experience), my personal involvements and development as a researcher, designer and design teacher have an impact on the research project and cannot be excluded. Taking a purely cognitive and/or detached position as a researcher, would not do justice to the nature of the research. Personal introspection is thus embraced as one of the driving forces in the research project and will be made explicit when relevant.

Also, since parts of the research depend on the work of students, my position as a teacher in these projects compels me to adopt a double role. As the initiator and surveyor of the projects, I adopt a critical meta-perspective. But as a teacher, it is required I immerse myself in the work processes in order to accurately inform and guide –or be informed and guided by- the students. So particularly in those parts that include the work of students, introspection and intuition have impacted this research. When this impact is identifiable and considerable, it will be made explicit.

1.3 OVERVIEW

This section describes the structure of this thesis. Due to the exploratory nature of the research, its subject has been approached from multiple sides. Although presented one after the other in this dissertation, the different parts have evolved more or less simultaneously and have informed and influenced each-other mutually. Consequently, the chapters overlap and topics re-emerge from a different perspective in different chapters.

In the preface, I sketched my motivation to carry out this research project and its relevance for society in general and architecture in particular.

Chapter 1 outlines the context of the problem and explains the general intention and approach of the research. Additionally, an overview on the thesis as a whole and its constituent parts is given.

In chapter 2, a preliminary theoretical framework on experiential qualities of architecture is conceptualized, based on existing literature from diverse disciplines. By critically assembling related concepts, theories and findings, the nature of the topic is examined and our -culturally grounded- conception of it is analysed. The aim is not to conclusively pin down the phenomenon nor to explain its workings. Rather, this part of the research exploratively investigates contemporary perspectives and questions covert assumptions in order to identify characteristics that mark the core of the phenomenon.

Chapter 3 focusses on the perspective of the designing architect as producer of a spatial environment. It exploratively examines the lack of systematic or explicit knowledge for addressing experiential qualities during architectural design processes. Firstly, architecture discourse is searched for reports of design processes that to some extent incorporate experiential qualities as a conscious focus. Secondly, the cases of Steven Holl and Peter Zumthor are studied. These renowned and influential contemporary architects have both proclaimed spatial experience as a core theme in their work. In addition, architectural design processes are closely observed as they happen. To this end, a graduation studio in architectural design was set up at the faculty of design sciences at the university of Antwerp. The findings of the observation are compared to the findings of the architecture discourse and case-study research. Chapter 3 firstly aims to identify and expose gaps and needs in architectural design practice. It then suggests considerations and recommendations that can help provide a more solid basis for generating design proposals and making architectural design decisions concerning experiential qualities.

In chapter 4, spatial experiences are examined as they occur, from the perspective of the experiencing subject. It reports on applied empirical research, based on a course unit for master students in architecture that examined multi-subjective perspectives on several recent buildings in Flanders. The first stage consists of an explorative research trajectory with a focus on collecting and analysing descriptions of architectural experiences. A baseline of first-person descriptions of experiences in various built environments is established. These descriptions are then studied by thematic content analysis in order to portray what is present perceptually in the user's experience of architecture. Subsequently, the results from the analysis are compared with more or less similar ideas and concepts in architecture and related disciplines with the aim to identify essences and characteristics of experiential qualities of architecture. The second stage consists of case-study research on crematorium buildings that similarly focusses on collecting and analysing first-person descriptions. Additionally, the case-study research examines how to graphically represent the experiential qualities of the crematorium buildings, how to incorporate them in architectural drawings.

In the final chapter 5, I look back on some of the important aspects of the research. Firstly, I evaluate the general approach and the research trajectory. Secondly, I assess the main research findings and indicate their potential value for architecture by reflecting on the research from both a panoramic and an introspective viewpoint. And finally, some recommendations and possibilities for subsequent and related future research are suggested.

1.4 CONSIDERATIONS

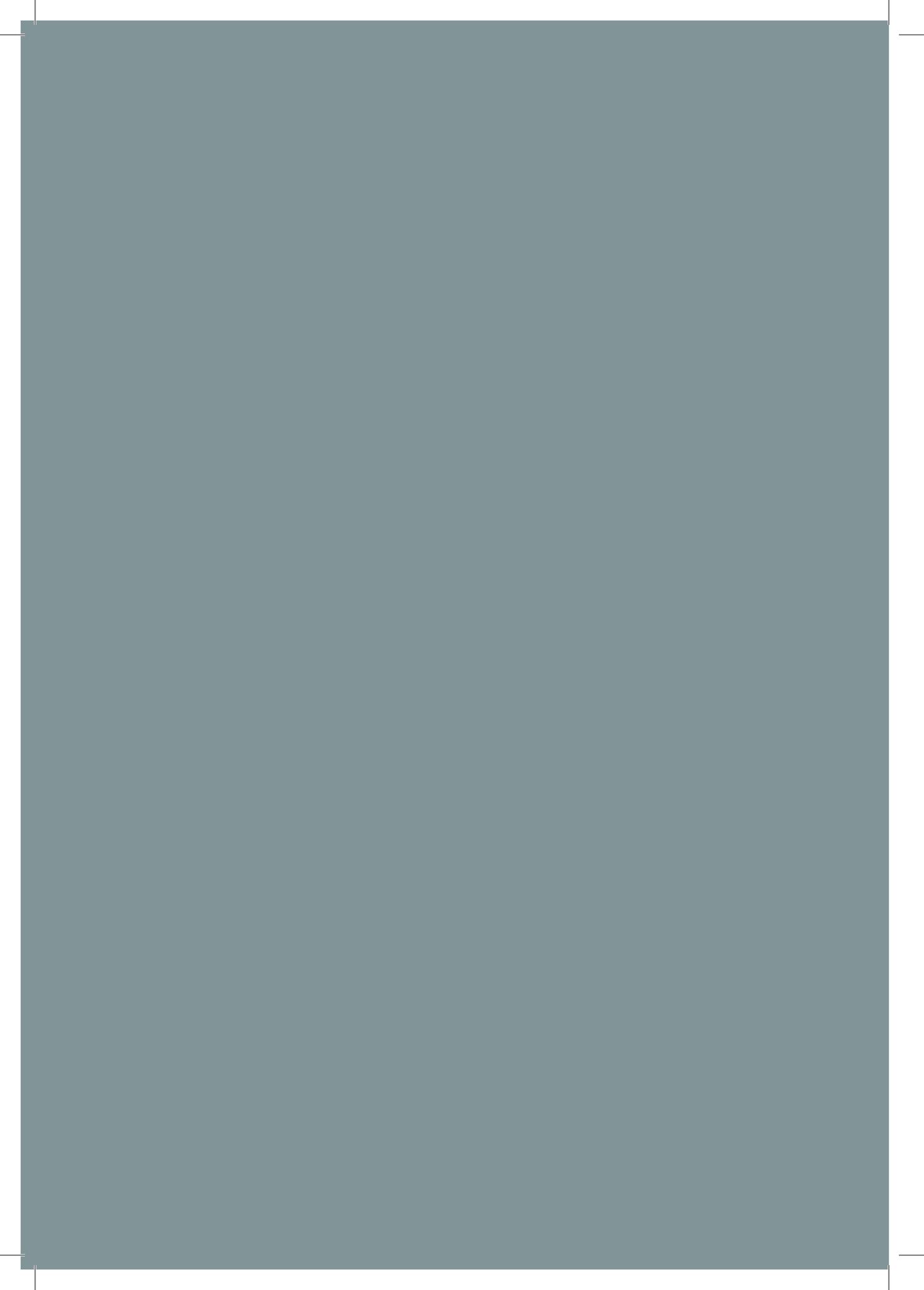
This research focusses on affective qualities of built architecture, thereby advocating their importance. It is an appeal for strengthening the vantage point of the experiencing individual in the architectural profession. Nevertheless, I wish to stress that they should not be given priority over other architectural considerations. Because of its complex nature, architecture can be enjoyed, discussed and evaluated on many different levels and from a variety of perspectives such as technical, practical, aesthetic, financial, environmental, innovative and so on. The significance of built architecture lies indeed in the interplay between its many qualities.

Also, as Böhme astutely remarks, both assessing and designing architecture with a focus on its experiential qualities hold some pitfalls (Böhme, 2006, p.151-152). Firstly, it might reduce architecture to what is immediately observable. When the dominant objective of architecture is its experiential impact, a

tendency might arise to regard architecture as a collection of surfaces, thereby restricting it to a craft of superficial adornment or a mere orchestration of effects. Secondly, focusing on experiential qualities easily allows architecture to be abused as a strategic manipulative tool for economical and political purposes. As an experiential commodity, it fits easily into recent developments in the capitalist economy, where providing or selling unique experiences have emerged as the next competitive battleground. In what is labeled 'the experience economy' (Pine & Gilmore, 1999), experiences are identified as a distinct commercial offering, providing economical value by uniting costumers with an event or product. The same goes for political purposes: especially –but not exclusively– in so-called post-truth politics, providing engaging experiences to voters can become a major campaigning objective.

So focusing on experiential qualities of architecture potentially leads to an architecture of the spectacle, where architecture merely forms a stage for experiential effects –mainly to economical and political ends. In order to avoid being reduced to a promotional or manipulative instrument, an architecture that addresses the experiential needs to remain critical. Or, in lieu with the theme of the 7th International Architecture Biennale in Venice, it must embrace 'More ethics, less aesthetics'.

2. theoretical perspective



This chapter researches experiential qualities of architecture from a theoretical conceptual perspective, based on existing literature from diverse disciplines. By critically assembling related concepts, theories and findings, the nature of the topic is probingly examined and our -culturally grounded- conception of it is analysed. It exploratively investigates contemporary ideas and concepts, and questions covert assumptions in order to identify characteristics that mark the core of the phenomenon, and conceptualize a suitable theoretical framework.

2.1 SPATIAL EXPERIENCE

In everyday language, experience is used as a cover-all term for a variety of modes and events. As a noun, it can indicate skill, training, maturity, background and sophistication. We say that someone has a lot of experience when that person possesses a considerable amount of practical knowledge. It can also stand for an occurrence, an adventure, an encounter or an incident. Accordingly, to experience can mean to know, to participate in, to be exposed to, to come into contact with, to sustain, to suffer, to feel. It is commonly used

whenever a person senses, knows or constructs a reality. Still, we do not categorize every encounter with reality as an experience. For an experience to be labeled as such, it has to leave an impression on someone. Experiences always have more than information content, they also have a certain feel (qualitative or phenomenal content). So two subject-related factors are indispensable: a conscious registration and an affective corollary of the encounter by the subject that experienced it. Many other factors –both subject- and object-related- play diverse roles in the nature, the intensity or the duration of the experience, but conscious awareness and an affective response are the minimal conditions for any experience to take place.

According to Metzinger (1995), an experience in general can be defined as a conscious episode that is perceived more or less as a gestalt and is characterized by three important properties: transparency (immediately given, natural), perspectivalness (subjective), and presence (temporal). Basically, it is the awareness of ‘what it is like’, ‘for me’, ‘now’.

In philosophy, the awareness of what it is like to undergo a given conscious state is known as the phenomenal character of the state. (What is being experienced and the way it is experienced are inseparable.) This character, which implies an inherent subjective perspective, poses one of the most puzzling philosophical problems of consciousness. But for present purposes this doesn’t matter much, for there is broad agreement (Tye M., in Velmans & Schneider, 2007, p.23) that phenomenally conscious states –since they are also transparent- can be classified into at least the following categories:

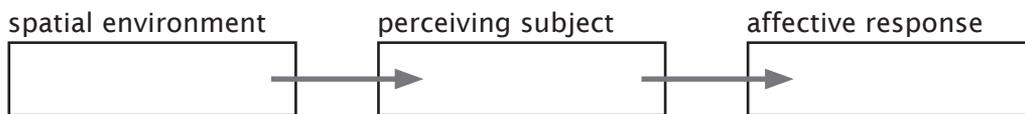
- perceptual experiences (seeing green, hearing loud trumpets, tasting chocolate, smelling the sea air, running one’s fingers over sandpaper)
- bodily sensations (feeling pain, feeling an itch, feeling hungry, feeling hot, feeling dizzy)
- felt reactions or passions or emotions (feeling anger, lust, fear, love, grief, jealousy, regret)
- felt moods (feeling happy, depressed, calm, bored, tense, miserable)

So, for this research, an experience can be broadly defined as an encounter with reality that is perceived more or less as a phenomenal unity and is characterized by its affective quality. The affective quality consists of a combination of perceptual experiences, bodily sensations, feelings and emotions, and moods.

Undeniably, every experience has a spatial component. We live in space and are constantly surrounded by it. So every experience takes place in certain surroundings. But not every experience is a spatial experience. And not every

encounter with a (physical) space will result in an experience. A spatial experience is an event that not only occurs in a spatial environment, but which also has the confrontation of the subject with the environment as its intentional content. In other words, a spatial experience is a type of experience where the external stimulus event primarily consists of the spatial surroundings of the subject.

On the basis of these preliminary definitions, the simplest conceptual relation between architectural space and the way it is experienced can be illustrated as follows:



This heavily simplified potential working model describes a straightforward stimulus-response relation between the basic components of ‘architectural experience’. It doesn’t represent the actual structure of the phenomenon but, as an abstraction, serves as a starting point for analysis.

These basic components and their interrelationships will be examined in the next paragraphs to determine their nature. Even if it inevitably implies reducing the complexity of the phenomenon as a whole, it should at least provide a better -if partial- understanding of the general character of architectural experience and allow to formulate some preliminary definitions.

2.2 ARCHITECTURAL SPACE

Space is a fundamental topic to many different areas of study and there is a great variety of possible types of space, ranging from abstract notions such as mathematical space, to physical ones such as a room or a street, to behavioral notions such as territorial space and personal space. Also -and especially- in architecture, space is a central theme. It is arguably the architect’s main focus to create the physical surroundings, the settings which organize our lives, activities and relationships. The largest part of most of their job consists of designing, documenting and managing the orchestration of building materials in order to produce some kind of spatial construction (cf. Allen, 2009; Hillier, 1996). Still, architecture is never simply the inert material background of our activities. According to Rapoport, the built environment is always part of a broader environment that can be defined as any condition or influence outside the organism that is being studied, and where “space is experienced

as the three-dimensional extension of the world which is around us - the intervals, relationships and distances between people and people, people and things, and things and things” (Rapoport, 1977, p.9). But while space is an important aspect of this broad environment, it is not a simple or unitary concept. Depending on perspective and focus, space has been conceptualized as topographic (Perec, 1974), social (Lefebvre, 1974), poetic (Bachelard, 1994), cultural (Frampton, 1983), perceptual (Norberg-Schulz, 1980), territorial (Hall, 1966) or behavioral (Rapoport, 1977). These categorizations overlap and are related to each-other since they all consist of a specific mix of physical and non-physical aspects.

The physical parts are the source of stimuli that our sensory receptors can directly respond to and can be categorized as: the natural factors or climate, materials and objects, and organizing principles. The non-physical parts are those that influence what we respond to and how we process what we capture. They are socio-cultural factors that serve as frames of reference, and situational factors that form the conditions particular to a certain time and place.

All man-made environments obviously include aspects of all of these factors. They form complex systems in which both physical and nonphysical components can play an important role. However, in this research context, it can be argued that the non-physical aspects are situated in the relation between ‘architectural space’ and the ‘perceiving subject’. They are a property of both, or better: they are an in-between. They inevitably influence the way we experience architectural space, but as a particular back-ground, as existential parts of a community, and not as inherent parts of architectural space proper. They are not the raw materials that designers can work with, rather they form the conditions in which they work. Designers can question or confirm these conditions, and even aim to secure or change them by their work, but not directly shape or manipulate them.

So when speaking about ‘architectural space’ in this research, the actual built physical space is referred to. This does however not mean that only the material aspects of the built space are included. When focusing on architectural space as a physical environment, the created space consists of and includes much more than an assemblage of material things. Through the manipulation of materials, architects shape and organize spaces, create climate conditions and accommodate human activity. These form an integral part of the physical environment that is defined here as ‘architectural space’.

- natural factors or climate: light, humidity, temperature, air quality, acoustics
- organizing principles: dimensions and shapes of spaces, function, or-

dening, and circulation

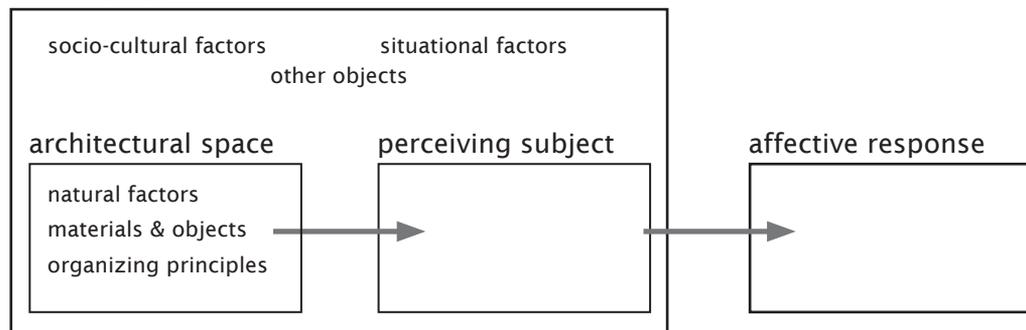
- manipulated materials and objects: used materials with all their qualities and shapes, combinations, connections, and functions

The physical parts are usually the stuff that architects work with and -since they are as such present- that have a direct impact on the (perceptual) nature of architectural space. As parts of a more or less coherent whole, they also overlap and interact: they can magnify, contrast with, weaken, contradict with, or tone down each-others impact. They form ever shifting combinations and alliances, connect and disconnect. As such, they continuously weave a complex and unstable web that, in its totality, makes up the architectural space.

In general, the impact of these factors depends on:

- the amount of stimuli (objective, physical): intensity, duration, frequency, persistence
- the meaning of the stimuli (subjective, socio-cultural): interpretation, value

environment



So architectural space refers here to a real, man-made environment consisting of a variety of physical aspects in a particular configuration. It forms an external source of sensory stimuli and is part and co-producer of a larger physical, social and cultural environment.

Since natural factors change rapidly and the socio-cultural environment evolves, the nature of architectural space is astatic as well.

2.3 PERCEIVING SUBJECT

The term 'perceiving subject' may seem a bit odd since any conscious subject perceives something all of the time: if a subject doesn't perceive anything at all, he/she is certainly unconscious and probably dead. Still, the adjective 'perceiving' is vital in this context because it focuses attention on what perception is and on how it works. When analysing how architectural space affects its 'users', it becomes crucial to gain insight in the nature and the mechanisms of how the user captures and processes information from his interaction with it.

The question of how we as human beings relate to and interact with the world around us, is a longstanding topic of discussion in Western civilization. This important question has been asked in many ways and a great variety of answers have been proposed. It would go far beyond the scope of this dissertation to even summarize the different models that have been constructed regarding this topic.

Still, in all its variety, dominant traditions of Western thought on the human subject and its relation to the environment are based on the notion of a physiological dualism: the idea or belief that human beings are composed of both a conscious spirit/mind and a physical body.

The divide between the insubstantial spirit/mind and the material body is deeply embedded in our religious and philosophical traditions and was famously formulated by Descartes in the 17th century. The central claim of Cartesian dualism was that a subject consists of *res extensa* (matter, body) and *res cogitans* (thought, mind). However, the immaterial substance, the thinking thing, is the essence of the subject. It constitutes a constant inner core that transcends our bodily, situated self.

Up until now, many philosophers and scientists remain committed to the notion that there is a 'thing' inside us which allows us to be conscious and think. Most contemporary thinkers however identify the 'thinking thing' not as something immaterial but as a combination of the brain and the central nervous system.

Physiological dualism additionally implies a dichotomy between subject and object. If mind and matter belong to different ontological categories, then so do subjects -of which the mind constitutes the essence- and (material) objects. So in perception, the observer (the subject) and the observed (the object) remain firmly separated. In dualistic conceptions, a perceiving subject is a relatively stable biological entity who more or less distantly surveys the outside

world and brings it into conceptual focus by his/her mind. A perceiving subject collects sensory information from the environment through its body apparatus and transmits it to a relatively independent brain that processes the incoming information in order to try to make sense of the outside reality. The more accurate we perceive and the more lucid we think, the closer we come to understand reality as it is.

Also in architecture, the topic of what is a (perceiving) subject has a long history. As one of the main purposes in architecture is to accommodate persons and their activities within architectural spaces, architects necessarily have to construct, whether or not explicitly, conceptions of those subjects. In Western architecture, these conceptions, in their many variations, were and still are predominantly based on a dualism between mind and body (Pérez-Gomez, 2016; Vesely, 2004). Resultingly, architecture has treated its users often as either detached minds or purely physical bodies, sometimes as simultaneously both, but seldom as both synthesized.

In its most reductive form, the body is ignored altogether and architecture is viewed as an intellectual exercise. Architecture then operates as a communicative system of representation whose intrinsic meaning must be cognitively understood, whether through grasping its underlying concepts and symbolics, through acknowledging its problem-solving abilities, through appreciating its geometric and proportional composition, or through its technological or functional logic.

Most conceptions do recognise the human body as an essential factor of architecture's take on the subject, in varying relations to the mind. Still, nearly all architectural theories and practices conceive of it in reductive terms (Imrie, 2003). In some extreme cases, the body is regarded as little more than an object with fixed measurable parts: an abstracted, neutral, uniform, geometrical figure. As such, it serves mainly as a standard or a tool that provides quantifiable data concerning dimensional, ergonomical, and functional requirements. More commonly, some form of corporeal (e.g. the body as a functioning organism) or biological (e.g. the body as a receptacle for sensorial information) dimension is added to the geometrical body (which, admittedly, provides indispensable information for the practicing architect). But even then, the body is more often than not considered as a fixed and singular type, while generally failing to acknowledge its diversity, richness and variability. Individual and circumstantial differences tend to be ignored in favour of invariable, normalized conceptions –usually based on the average, fit, male body.

So when operating within a dualistic framework, architecture tends to operate

with partial and reductive conceptions of a perceiving subject. For addressing experiential qualities, these conceptions prove inadequate at best.

A more promising approach is presented by (contemporary) phenomenology, a disciplinary field in philosophy initiated by Edmund Husserl in the early years of the 20th century. Although there exist many versions of and variations on phenomenology, what they have in common is their attempts to examine experiences, situations and meanings as they occur. "It is the search for a philosophy which shall be a 'rigorous science', but it also offers an account of space, time and the world as we 'live' them. It tries to give a direct description of our experience as it is, ..." (Merleau-Ponty, 1962, p.VII)

To phenomenologists, a subject is not some kind of autonomous thinking entity that reflects on the outside world, but a body-subject that is inexorably immersed in the world. Such as we cannot conceive the world as it exists autonomously, we cannot conceptualise a subject separately from a body or from the world. A subject is always a body-subject as it is experienced in the world.

According to Merleau-Ponty (1962), it is through the 'lived body' that we engage with the world and the world engages with us. This engagement must not be seen as mere perception -as the sum of our sensory inputs- but as "one continuously shifting fabric of sensory experiences, bodily awareness and actions ... a 'perceptual field'" (Seamon, 2013, p.3). It is the immediate givenness of the world founded in corporeal sensibility. "In Merleau-Ponty's phenomenological account of perception, human beings are not first subjects who then determine and define the object before them, nor is that object a mute, fully determinate thing that only then imposes itself upon experiencers. Rather, through bodily perception, we immediately engage with and are aware of the thing because it immediately and mutually engages with us to offer a reciprocating, pre-reflective sensibility and signification." (Seamon, 2013, p.4)

The idea of a 'perceptual field' was taken a step further by J.J. Gibson. He not only regards it as the way we engage with the world, but also as a dynamic seeking process. According to Gibson (1983), the way we are enmeshed with our environment is by actively seeking and extracting information and patterns, done through our senses, who are considered as systems for perception (and not as channels of sensation). These systems always work interrelated and always involve the co-perception of the self.

Gibson also posited a non-dualistic view of the environment. An environment is perceived differently by different organisms because they respond only to

certain features of their environment or respond to similar features in different ways. A shared environment is thus never the same to different organisms because the properties of the environment that matter to the organisms differ. Those properties that do matter to an organism are called 'affordances'. Perception is mainly aimed at picking up affordances -information that supports action, in relation to the environment. Hence, Gibson claims that the objects of perception are not objects as such, but are to be understood in terms of possible action relationships with the perceiver. (On affordances in architecture, see Betsky, 2015; Rietveld, 2014 & 2016.) This means that perceiver and environment are complementary and reciprocal in their connectedness since actions of the organism have consequences for the environment, and the nature of the environment has consequences for the organism. As a result, the environment is not something physical 'out there' for us to observe and represent (mentally): it is always subjective, cultural and social.

Scientific discoveries and the development of innovative technologies -especially in microbiology and neurology- at the end of the 20th century brought momentum to the attempts to build a model of ourselves as perceiving subjects. Genetic sequencing and fMRI for example made it possible to look at and into ourselves in ways that were previously unthinkable. It changed the state of knowledge and reshaped the research area and the issues being debated. The subject and its relationship with the world (resp. consciousness and perception) have become topics studied by a growing variety of scientific fields in addition to philosophy. Remarkably, almost all new models being put forth based on recent neuroscientific discoveries and breakthroughs foster the phenomenological view and oppose the dualist approach. As Mallgrave (2013, p.8) puts it: "The famous Cartesian distinction between matter and thought which ruled science and philosophy for much of three centuries, is the most obvious casualty."

Regarding the topic of the subject, what most of the recent models have in common is that they challenge the brain-based conception of consciousness and argue that consciousness is constitutively dependent on the body: it is not something that happens within our brains, but rather something that we do through our living bodies (and our engagement with the world). Neuroscientific research has demonstrated that "the sensory-motor system has the right kind of structure to characterize both sensory-motor and more abstract concepts" (Mallgrave, 2013, p.61); that "it is misguided to search for neural correlates of consciousness -at least if these are understood, as they sometimes are, to be neural structures or processes that are alone sufficient for consciousness" (Noë, 2009, p.185); and that "the brain and the body are indissociably integrated by mutually targeted biochemical and neural circuits"

(Damasio, 1995, p.88). Because they do not regard mind and body as separate things but as aspects of one organic process, these models are commonly labeled as 'embodied' (noun: embodiment).

Embodiment not only rejects a mind/body separation, it also considers -in accordance with Merleau-Ponty and Gibson- the subject and its environment (natural and cultural) as reciprocally connected. An embodied subject is a bodily organism that has a brain operating as part of its body, and this organism continually and dynamically interacts with its natural and cultural environment. "... the neural dynamics of consciousness (are) a condition of 'radical embodiment' -that is, the nervous system, the body, and the environment are interwoven and highly structured dynamic systems, integrated with respect to one another at various levels both internally and externally. Such integration is built on three cycles of operation: 1) the organismic or homeostatic regulation of the body, 2) the sensorimotor coupling between the organism and environment, and 3) the intersubjective interactions with other people, made possible by mirror neurons but embedded within larger cultural values." (Mallgrave, 2013, p.64)

Resulting from the reciprocal relationship between subject and environment, perception cannot (only) be an information-analysis process carried out in the brain. To an embodied subject, it is an exploratory activity dependent on patterns of interaction between a perceiver and the environment (cf. Lakoff & Johnson, 1999; Godfrey-Smith, 2016). Since this interaction is multi-directional, a mechanical stimulus-response model will be insufficient to describe the characteristics of perception.

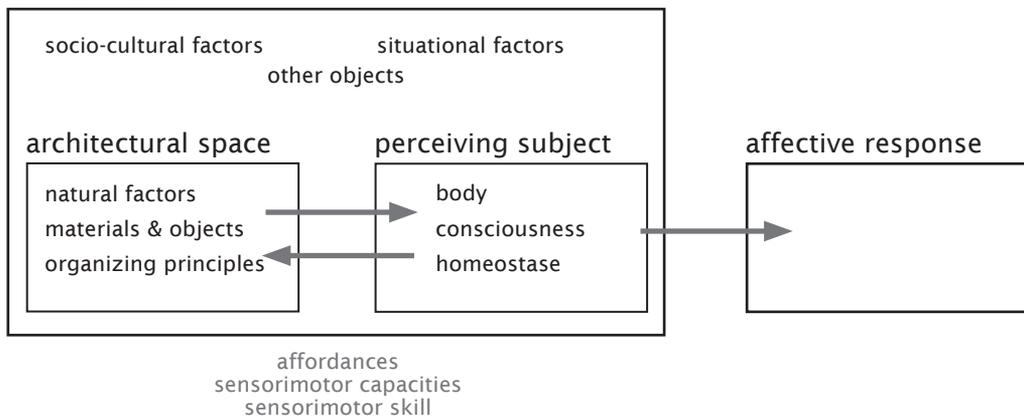
Moreover, according to Noë (2009), perceiving is a particular activity, something every individual performs differently depending on circumstances and personal perceptual capacities. These capacities are only 'given' on the level of our basic perceptual sensitivity -of the characteristics of our senses. The way we work with these given capacities -perceptual awareness and perceptual skill- depends highly on individual (but also on cultural) patterns. So to Noë, perceiving is a skillful activity, mediated by our mastery and implicit knowledge of sensorimotor contingencies. Perceiving does not consist in the activation of neural structures. Even though it causally depends upon such activation, neural activity is not sufficient to produce perceptual experience. To Noë, perceiving is not something that takes place inside us (something that occurs in our minds or brains), it is something we do intentionally but unaware of all the subtleties and complexities -comparable to dancing with a partner. It is the result of a combination of sensorimotor activities, the characteristics of our sensorimotor apparatus, our acquaintance with (and mastery of) its working,

and the properties in the world to which the apparatus is responding (akin to Gibson's affordances).

The embodied view on the (perceiving) subject is not foreign to contemporary architecture (e.g. Bachelard, 1994; Lefebvre, 1991; Pallasmaa, 2009; Pérez-Gomez, 2016), but tends to appear as episodic and fragmentary. It generally arises from individual concerns and intentions of researchers and designers, who present wide-ranging interpretations of the embodied subject, both conceptually and practically.

For this research's working model of spatial experience, the embodied model of the perceiving subject has severe consequences. Perceiving doesn't 'happen to us' in a predetermined manner or according to the fixed laws of a perceptual system. It is largely an intentional and unique process we perform in our relationship with an environment: we make (deliberate and inadvertent) choices, develop skills, are susceptible to influences, and adapt to circumstances. So architectural space and a perceiving subject don't relate causally. Their relationship is much more reciprocal and unique, depending on cultural and individual patterns, affordances, our sensorimotor apparatus, intention of the subject, and perceptual skill.

environment



It implies that an architect can only speculate which aspects of a designed space will be perceived by which individual or group of individuals. Any architectural space will not only be perceived more or less differently by different subjects on the same occasion, it will never be perceived identically by the same subject on different occasions.

2.4 AFFECTIVE RESPONSE

A response is by definition a reaction of an organism (or a mechanism) to a specific stimulus. A response is intentional (it is about something) and it can be internal (only perceptible for the responsive subject) or external (noticeable to others). The various responses of a subject can be categorized as affective, cognitive and behavioral, or any combination of these. Affect refers to the experience of feeling or emotion. It can also refer to the observable manifestations -the display- of a subjectively experienced emotion. So 'affective response' can be defined as the experience and/or display of emotions or feelings as a reaction to a stimulus.

Stimulus

In the initial research model, the stimulus to which the subject responds was identified as architectural space. But because architectural space and a perceiving subject intertwine reciprocally, the above model shows that the stimulus should actually be identified as the interaction between an embodied subject and architectural space. As objective architectural space (a static, autonomous object) only exists as an abstraction, it is subjective space - the dynamics between subject and space- that forms the stimulus.

The experience of emotions

Emotional states are commonly thought of as antithetical to reason. Fear, anger, joy, pride, sadness, disgust, shame and the like belong to the category of emotions that apparently stands clearly apart from rationality. In contrast to reasoning, we seem unable to control them. We experience emotions as happening to us besides our will, sometimes distorting self-control, deliberate thinking and advisable behaviour.

Psychological investigations related to what (experiences of) emotions are and how they are caused, have led to different theories that can be categorized basically in two distinctive approaches: the basic emotion perspective and the appraisal perspective (Gendron & Barrett, 2009). These approaches, however different, are both grounded in the assumption that emotions are entities: people experience emotions because they have emotions. Experiencing an emotion is the process of introspectively accessing that emotion. In other words, someone experiences an emotion when that particular emotion mechanism is triggered (by the brain, the body, or the situation). The emotion is an object of consciousness and the presence of that entity causes the experience of it. Language reflects this idea as we say that we 'are in touch with', 'get bur-

ied by', 'have access to', 'let go of', 'misread' or 'suppress' emotions.

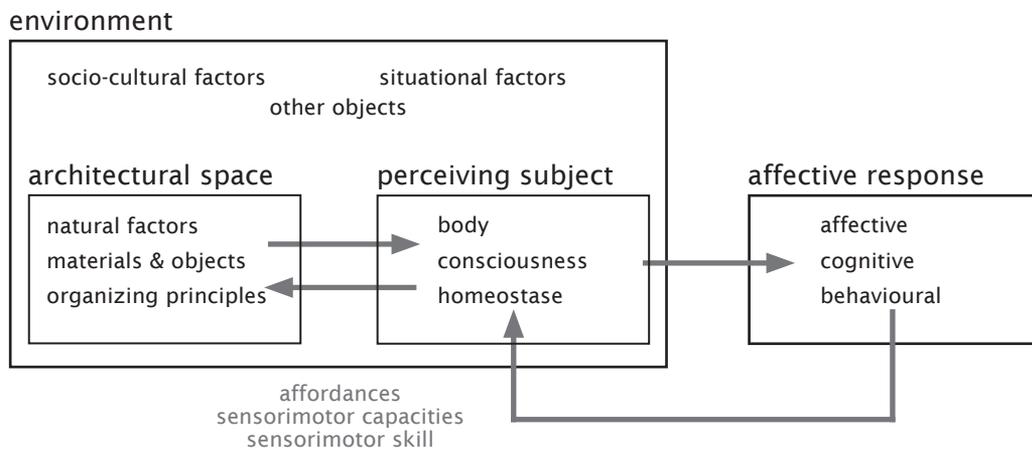
The assumption that emotions are objects of consciousness that contrast with rational thought seems natural to us. However, it is not consistent with empirical evidence nor is it supported by recent discoveries in cognitive sciences. "People are compelled by their own experience to believe that emotions exist as natural-kind entities, yet a century of research has not produced a strong evidentiary basis for this belief. To date, there is no clear, unambiguous criterion for indicating the presence of anger or sadness or fear." (Barrett, 2006, p.27) This is what Barrett calls "the emotion paradox".

To solve it, she proposes a different view on emotion based on embodied conceptual knowledge and recent neurological findings. Barrett suggests that experiencing an emotion is an activity in the brain and body that is the result of the categorization of a more basic biological substrate, core affect. "Core affect is the basic building block of emotional life. Core affect has been characterized as the constant stream of transient alterations in an organism's neurophysiological state that represents its immediate relation to the flow of changing events. In a sense, core affect is a neurophysiological barometer of the individual's relation to an environment at a given point in time.... When a state of core affect is categorized with knowledge from the conceptual system, the result is the experience of discrete events that people characterize as anger, sadness, and fear." (Barrett, 2006, p.30-31)

To Barrett, experiencing emotions is not an act of accessing an entity residing somewhere within the brain or body but a conceptual activity, essentially based on personal emotion concepts -everything we already 'know' about emotions. Emotion concepts are not static, fixed representations of emotional states but ever-changing and reconstituting packets of a person's knowledge about emotion. So what people know about emotion and how they use that knowledge during the categorization process will influence what they feel and how they feel it. Each conceptualizing is also highly situated, or context sensitive. "There is not one script for anger, but many. On any given occasion, the content of a situated conceptualization for anger will be constructed to contain mainly those properties of anger that are contextually relevant, and it therefore contains only a small subset of the knowledge available in long-term memory about the category anger. The situation, then, will largely determine which representation of anger will be constructed to conceptualize a state of core affect, with the result that the experience of anger (or of any emotion) will be sculpted by the situation." (Barrett, 2006, p.33)

This view on experiencing emotions challenges the strict separation between

emotions and thinking. Emotions are emergent products or states that are at once affective and conceptual. The idea is that affective and conceptual processing proceed in parallel and result in an emotional episode that people experience as a whole. Since core affect is a continuous stream, these processes also continue uninterrupted. As a consequence, purely rational or purely emotional reactions do not exist: they are always both. So called objective and subjective responses are not contrary to each other nor do they belong to separate categories. They should rather be seen as gradients of any experience. This view accords with the fact that not a single neuroscientific research has succeeded so far in locating or identifying separate neural circuits for emotion and thought.



This seems to make any attempt to categorize experiences as affective or not pointless since -to some extent- they all are. However, this is not the case. Since experiential content and character are the same (an experience is what is being experienced), and since an emotional experience is a conceptual act, we can categorize as affective any experience that is conceived or labeled as emotional by the experiencing subject. This does imply however that any a priori delimitation of categories becomes impossible.

The same goes for 'spatial experience' in general. Since it is defined as "an affective response that is directed to the interaction between an embodied subject and an architectural space", and since an affective response is defined as a subjective conceptual act, we can only a posteriori categorize an experience as spatial or not. Whether an experience is intuited or considered as spatial depends completely on the actual experience (which is the result of both affective and conceptual processing) by the subject. So not only can we not guarantee a corresponding emotional response by an architectural construction, we cannot even know for sure that a spatial experience is going to occur

at all.

The consequences for this research of the embodied view on experiencing emotions are profound. Emotions are not sensations of natural emotion mechanisms that can be triggered by an external (in this case architectural) factor alone. An emotional experience results from the individual's evaluation (somatovisceral, cultural, social, intentional) of his own state in a particular situation on a particular moment. It is thus impossible to create an architectural environment that will unmistakably result in a certain emotional response. Firstly because there is no direct causal relationship between an environment and an emotion. Emotions are always the result of a more complex interaction between a subject and a -only partly spatially determined- situation. The environment's share in the conceptualization of an emotion can only be guessed at. And even if it can be estimated, it can not be completely isolated from other factors. Secondly because emotions don't form a separate category of well-defined responses to a situation. People are never only angry, joyful or ashamed, they also always react cognitively and behaviourly. Affective, cognitive and behavioural reactions form an indivisible whole. A purely emotional response doesn't exist. And thirdly because the conceptualizing of any emotion is never the same. Anger, joy, shame don't exist as distinctive measurable states (quantitatively nor qualitatively) that reside in (groups of) people and that we can aim for or try to trigger: they are highly situated and varying individual concepts. They only exist when and as experienced by someone.

2.5 SUMMING UP

As mentioned (2.1 Spatial experience), the initial working model doesn't represent the actual structure of spatial experience but served as a starting point for theoretical analysis. Researching its components -which at the same time questioned its dynamics- lead to a more elaborate model. Undeniably, also the resulting model doesn't stand firm as a representation of the impact of architectural space on the phenomenon of spatial experience. It shows the initial stimulus-response model is, however simplifying, too heavily based on common assumptions and socio-cultural constructs that are generally regarded as genuine or valid but are not supported by scientific evidence, both with regard to the nature of its components and to the way they interact.

The components -architectural space, embodied subject and affective response- are not separate natural entities that exist next to each-other, but form blurred and variable 'fields' that overlap and interconnect.

Architectural space forms part of a larger socio-cultural environment to which also the subject belongs. Objective (natural) space does only exist as a concept. As a source of sensory information, architectural space is always subjective and in terms of affordances never the same. As such, its nature is astatic.

The embodied subject is by definition formed by and tied to its environment. It cannot exist apart from its surroundings and is constantly (and rapidly) adapting to and learning from it. It implies a subject must not be conceived as sterile nor fixed but as conjoined, dynamic, and ever shifting.

Affective responses are not even natural entities: they are emergent conceptual and emotional states that are highly contextual and exist only when being experienced by a subject. They are what and how a subject experiences. They form part of a broader response to how a subject and its environment interrelate.

The research manifestly shows the basic assumption that systematic causal relations exist between properties of architectural space and a subject's affective response, turns out to be false. Architectural space, embodied subject and affective response mutually influence each-other in ever-changing and unique ways.

An embodied subject is clearly influenced by architectural space, but not affectively determined by it. Since perceiving is a unique intentional process we perform in our relationship with architectural space, different subjects will perceive the same space differently, according to –amongst other factors– skill and intention. Moreover, also the same subject perceives architectural space differently on different occasions, depending on intention and situational factors.

The relationship between architectural space and an embodied subject is reciprocal. Not only is a subject influenced by architectural space, a subject also influences architectural space by being in it. The actions a subject performs have consequences for the architectural space.

An affective response is not the conscious registration of a natural reaction to an architectural space, but forms part of an intentional, situational and highly personal reaction to the dynamics between subject and environment. At the same time a subjective, a conceptual, and a contextual feed-back system, an affective response also alters the state of the subject and thus also the relation between that subject and the architectural space.

2.6 CONCLUSIONS

A spatial experience is an encounter with an architectural environment that is perceived more or less as a phenomenal unity and is characterized by its affective quality. For a spatial experience to be qualified as such, we have to conceptualize it as an integral event or episode that can be demarcated from our continuous interaction with reality. We have an experience when we define a situation or an episode as standing out by the existence of a unity that pervades the entire experience in spite of the variations of its constituent parts. This unity can consist of any combination of emotional, intellectual, intentional, practical and formal aspects but gets its distinctive identity by its overall affective quality. This quality consists of a combination of perceptual experiences, bodily sensations, feelings and emotions, and moods.

A spatial experience is thus not something that just happens to us as a result of an encounter with an architectural space, it is achieved or enacted by a person as a conscious reaction to his/her being affected by that space. The emergence and the processes of spatial experiences however are unpredictable and irreproducible. As situated, intentional and subjective processes, they are unique activities that do not have ontological status separate from our perception/conception of them. Also, there are no universal constants –neither in the components nor in the dynamics- and the exact influence of the various factors cannot be assured nor measured.

Still, even if it may be theoretically valid that (combinations of) architectural factors do not systematically relate to a corresponding emotional response, it can not be denied that certain common relations can be observed in concrete cases. Built spaces can have a more or less homogenous affective influence on (groups of) people. So architectural experiences do not totally nor arbitrarily depend on the experiencing subject and on situational factors. The absence of universal constants does not exclude the existence of regularities in dynamics or hierarchies among (clusters of) components. These can be identified and examined by case-study research of actual architectural experiences (see chapter 4. User perspective). It is by a careful reading of architectural symptoms that we can better understand characteristics that mark the core of the phenomenon of architectural experience.

The theoretical research seems to suggest that architects have little or no control over the way their designs impact how people experience them. But lacking control over the affective impact of their designs does not imply architects should neglect or abandon the notion altogether. Its unpredictability does not diminish its importance as a design focus. On the contrary, it is computabil-

ity of the phenomenon that would make architectural creativity and design obsolete. Neither does it mean that architects wouldn't benefit from a body of coherent or systematic knowledge on the phenomenon. It only implies this knowledge can not be universal nor prescriptive. But even without the guidance of generally valid rules or standards, the architectural design process can be enhanced by a critical understanding of the potential inherent in the experiential nature of architecture (see chapter 3. Design perspective).

If experiential qualities are to play a substantial role in architectural assessment and design though, a number of traditionally dominant conceptions regarding the phenomenon of architectural experience must be reconsidered. The theoretical research points out that some of the premises that ground these conceptions form part of outdated scientific viewpoints and ideas. The changing state of knowledge –particularly in psychology and cognitive and neurosciences– provides insights and alternative models that, however incomplete and preparadigmatic, allow to rethink how we and our (built) environment relate. Promisingly, they present perspectives that oppose a reductionist way of thinking and try to avoid static abstraction.

To rethink how we and our built environment relate (on an experiential level), at least we have to reconsider our notions of its basic components: spatial environment, perceiving subject, and affective response.

The key element here is the perceiving subject. In architecture, a subject has predominantly been conceived within a dualistic framework that separates mind from body and subject from object. As dualistic conceptions tend to prioritise quantifiable features of the subject (and of the environment), they prove inadequate for addressing experiential qualities of architecture. A far more promising perspective is provided by embodied models. Building on phenomenology and supported by recent neuroscientific research, they do present a suitable, albeit far from unfinished, paradigm. First and foremost, they reject a strict separation between mind, body and environment: an embodied subject is a holistic bodily organism intertwined with its natural and cultural environment. Embodied models reassess the relation between emotion or affect and rationality by claiming every form of understanding consists of more than just thinking. Every intellectual activity is not only rational but inevitably also entails sensations, emotions, and intentions. This view allows to redirect attention to –and to revalue– factors that have been neglected or misconceived in architecture as minor to abstract and functional reasoning: feelings, sensorimotor processes, and (experiential) qualities (e.g. Johnson, 2007).

Embodiment also forces us to rethink the status of our built environment. Earlier (2.2 Architectural space), architectural space was arbitrarily defined as a real, man-made environment consisting of a variety of physical aspects in a particular configuration. It forms an external source of sensory stimuli and is part and co-producer of a larger physical, social and cultural environment. This ontologic definition describes architectural space as autonomous and objectified. It corresponds with the usual architect's focus on spatiality: space as a physical structure in which things are located and through which bodies move. When embodied subjects enter the scheme however, architectural space also inevitably incorporates subjective properties whose actual manifestations include a diversity of phenomena. The physical environment becomes more than a static background conditioning the possibilities of spatial behavior. Through a reciprocal interaction with embodied subjects, it becomes part and co-creator of experiential phenomena. This means that both in designing and in assessing architectural space, autonomous qualities of physical space -i.e. architecture as a self-contained world- form a much too narrow frame of attention (see also Rietveld, 2014 & 2016). It also means the one-directional approach in architecture, where people and the spaces they inhabit are not conceived of as mutually constitutive, is based on architectural ideology rather than on reality. Buildings do not only shape or condition the behavior of people, human actions and phenomena reversely form an essential constituent component of architectural space. Our relationship with space is one of co-production.

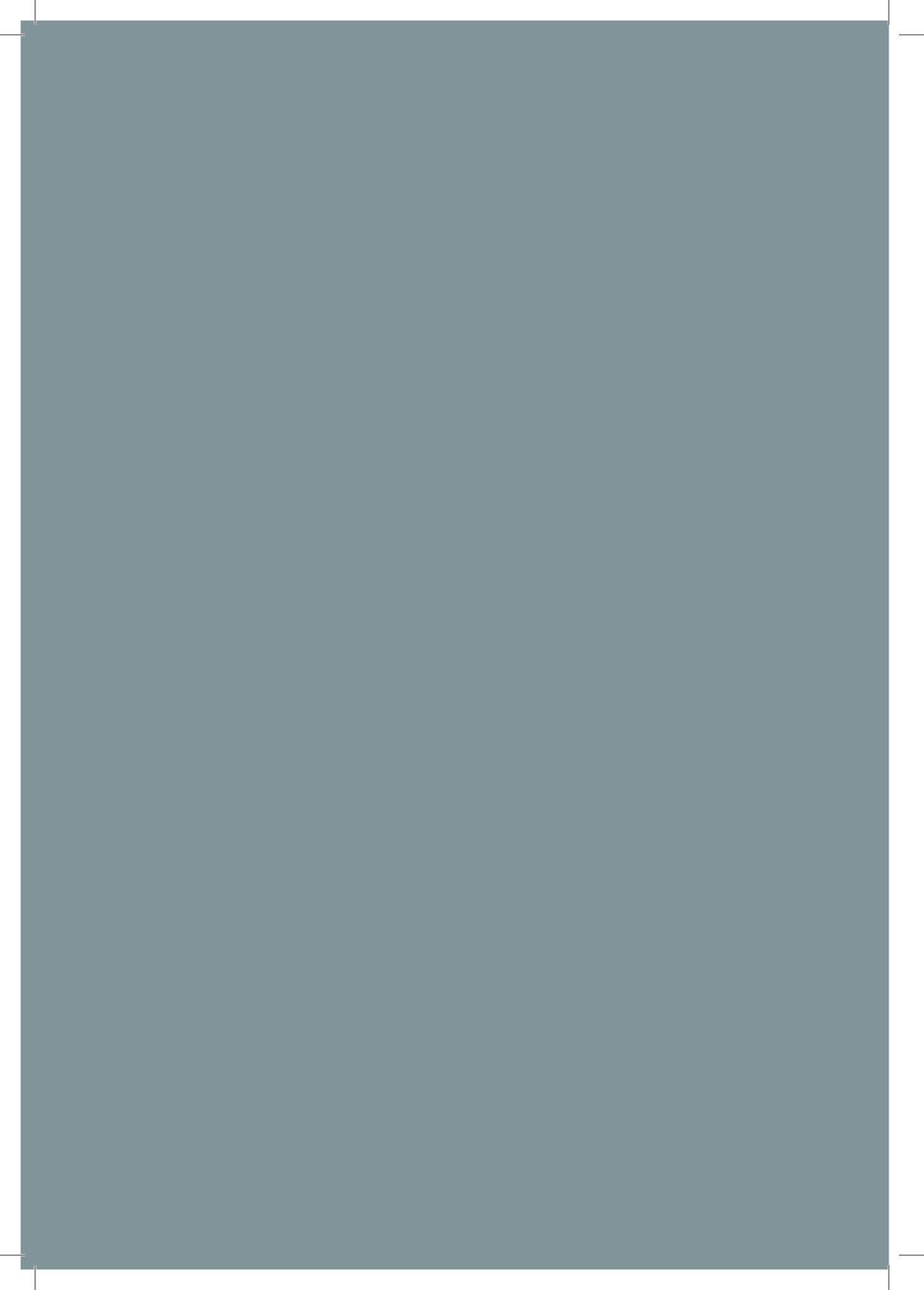
An affective response is defined as the experience or display of emotions (or feelings). Emotions are generally regarded as conscious registrations of natural emotion mechanisms. Within a dualistic framework, they seem to belong to a category that stands clearly apart from rationality, and are thus regarded as inferior to reason, thought or cognition. From an embodied perspective however, categories blur or disappear altogether. To Barrett (2006), emotions do not exist as (accessible) natural-kind entities, they are emergent states that result from the categorization of a more basic biological substrate, 'core affect'. Seen as such, an affective response is at the same time also conceptual and contextual. So purely rational or purely emotional reactions do not exist: they are always inevitably both. So called objective and subjective responses do not belong to separate categories but should rather be seen as gradients of any experience.

This view strongly criticizes our western tendency to objectify (our relation to) the world in which we live, resulting in a formalized conception of space. In particular, and very relevant to architecture, it renders problematic our western visual bias (Kleinberg-Levin, 1993; Pallasmaa, 2005; Vermeersch, 2013)

that favors detached observation and cognitive reconstruction over sensory attunement. Embodied models claim this valuation is based on a fundamental misconception: sensory attunement does not result from purely emotional responses triggered by bare perceptual exposure, it is a fundamental form of understanding we achieve by bodily interrogating what is around us.

An architectural experience is thus not a matter of purely subjective emotional (as antithetical to rational) responsiveness to a static physical environment out there. It is always inextricably both an affective and a cognitive conceptual achievement, performed by an embodied subject in a reciprocal and mutually constitutive interaction with the spatial surroundings.

3. design perspective



As mentioned in 1.1 Problem statement, despite its importance and its familiar character, the experiential dimension of space is seldom explicitly recognised as a decisive factor in contemporary architectural design processes and has inadequately been researched in recent architectural practice. For most aspects and elements that architects deal with during the design process, they can at least partially rely on theories, models, schemes or computations. Physical climate conditions can be predicted, minimal dimensions of construction elements can be calculated, ergonomics have been extensively documented, etcetera. For addressing experiential factors during the design process however, the architectural profession largely lacks systematic or explicit knowledge. Architects concerned about the affective impact of their designs, usually rely primarily on their intuition and/or reference projects.

This chapter reports on a research trajectory that zooms in on this gap in contemporary architectural design processes. It focusses on the perspective of the architect as designer of a spatial environment.

3.1 GOALS AND AMBITION

This chapter contributes to the overall goal of the research, in particular to its intention to clarify what role experiential qualities can play in architectural design, or better during the architectural design process. This clarification construes the objective here is not to construct speculative theoretical explanations of experiential design. The objective has a more pragmatic and applicable nature: to accurately expose what is missing in order to initiate further research aimed at increasing the problem solving intelligence and/or generating possible solutions for practical design activities.

Firstly, this chapter intends to identify gaps and needs in contemporary architectural practice to address experiential factors during the design process: to pinpoint what exactly is missing.

Secondly, it aims to suggest considerations and possible principles that can provide a more solid basis for generating design proposals and making architectural design decisions concerning experiential qualities.

Remark

The elephant in the room here is the fact that ‘the’ architectural design process does not exist. Every architectural design process is inherently unique. Firstly because every architect (or design team) is a person (or group of persons) with his/her own knowledge, experiences, sensitivities, interests and he/she applies available tools and techniques according to his/her own preferences and capabilities. Secondly because every assignment, every design brief is unique. The objective of every single architectural design is to create a construction (real or imagined) that does not exist yet. And thirdly because built architecture is never a detached, self contained object. It always exists, and comes about, in a specific socio-cultural context and unique physical location. Still, despite an overt lack of regularities, there must exist commonalities that characterize all architectural design processes, otherwise we wouldn’t be able to label them as such.

Due to the unique nature, establishing principles to guide design processes poses risks and should be done with great care. When formulated too strict -as a set of rules which, if followed, will guarantee architectural success- they can at best serve to create specific architectural identities, but not to advance the process of architectural design in general. As a formula for architectural success, principles might actually prove counterproductive by restricting creativity. When formulated too vaguely, the principles will not allow to structure

the field of possibilities and prove ineffective for a specific design case. Even worse, when formulated inaccurate or incorrect, principles can do more damage than good, resulting in a building that fails in its intent.

Ideally, principles should be general enough to be applicable in diverse design processes (address commonalities) and specific enough to be useful in a distinct case (address particularities).

In any case, principles (and also techniques) should be presented as possible options for realizing a stated aim, not as the only option.

3.2 METHODOLOGY

Defining 'architectural design process'

Before being able to identify what is missing in the architectural design process, it is necessary to clarify what a present-day architectural design process is and what it consists of. Theoretical analysis based on existing literature will allow to identify commonalities that characterize all architectural design processes.

Identifying gaps and needs in knowledge

Two tracks each contribute to identify gaps and needs in architectural practice: one track focusses on reports of design processes in architecture discourse (theoretical research), the other on observation of design processes as they happen (observational research). Both tracks are complementary to each other and compensate for each other's limitations and disadvantages. To be able to compare and combine the research results, they make use of the same categorization of the research results. The theoretical and observational research track ran simultaneously: they were initiated at the same time and proceeded chronologically parallel.

The theoretical track examines architecture discourse in search for gaps and needs that have already been identified. This requires detecting and researching reports of architectural design processes that to some extent incorporate experiential qualities as a conscious focus.

Initial exploratory research demonstrated such reports are extremely scarce. Also, the few existing reports only provide bits and pieces of relevant information. This remarkable shortage triggered the need to speculatively examine its causes since it may already provide some clues on what makes addressing experiential factors problematic.

Further research showed the majority of suitable reports stems from two renowned architects: Steven Holl and Peter Zumthor. Case-studying their discourse on their architectural design processes thus seemed a more adequate, though indirect, approach to identify more generally valid gaps and needs in architectural design practice.

The observational track studies architectural design processes as they happen. Since they must at least partially focus on experiential qualities, and since observation requires a continued proximity to the studied reality (in *casu* architectural design processes), content-related issues and practical difficulties quickly arose. As a solution to a combination of obstacles, a graduation studio in architectural design under my supervision was set up at the faculty of design sciences at the university of Antwerp. The studio ran for two consecutive years and both the design processes and the results were extensively documented by the students. My position as initiator and supervisor allowed me to adopt the role of participant-as-observer (Angrosino, M. in Flick, 2007, vol.3, p.55). From this researcher role, I analysed the courses of the studios with a focus on those design actions that more or less addressed experiential aspects of the design.

The results of both tracks are compared and the combined research result is formulated.

Suggesting considerations and principles

In response to the findings of the above, and based on knowledge gained in the other research parts, considerations and possible principles can be formulated, taking into account the reservations made in the previous paragraph (3.1 Goals and ambition).

3.3 THE ARCHITECTURAL DESIGN PROCESS

Clearly, an architectural design process is that kind of process through which architecture is designed.

But what then is architecture? For this research, I already stated (2.2 Architectural space) that architecture refers to physical space. From this perspective and with this limitation, it is generally agreed upon that architecture has something to do with building but that not all buildings should be seen as architecture. Since building is the more basic term, it follows that architecture adds something to building. The most common idea is that architecture adds

art or style to building. This idea however is unacceptable as a definition of what architecture should be, reducing it dramatically to mere cosmetics. According to Hillier (Hillier, 2007), the distinction between architecture and building can only be understood when we understand each both as a product and as a process. Both vernacular buildings and architecture can be very complex structures and stylish cultural artefacts. So when understood as a product, they are similar. What distinguishes them is their creation process, the way they are 'engineered'. Vernacular designers use generic sets of rules -ideas to think with- as the basis to produce a known and socially accepted design. The vernacular building draws on the normative rules that define the architectural competence of the community. Architecture transcends vernacular building as it uses these generic sets of rules not as ideas to think with, but as ideas to think of.

"Architecture begins when the configurational aspects of form and space, through which buildings become cultural and social objects, are treated not as unconscious rules to be followed, but are raised to the level of conscious, comparative thought, and in this way made part of the object of creative attention. Architecture comes into existence, we may say, as a result of a kind of intellectual prise de conscience: we build, but not as cultural automata, reproducing the spatial and physical forms of our culture, but as conscious human beings critically aware of the cultural relativity of built forms and spatial forms. We build, that is, aware of intellectual choice, and we therefore build with reason, giving reasons for these choices. Whereas in the vernacular the non-discursive aspects of architecture are normative and handled autonomically, in architecture these contents become the object of reflective and creative thought. (Hillier, 2007, p.32)

It implies that architecture is not only a product, but also an aspiration. It requires comparative knowledge and reflective thought in addition to imagination and creativity. It is when we detect in buildings the traces of such knowledge and thought that we recognize it as architecture.

"The judgment we make that a building is architecture comes when we see evidence in the building both of systematic intent which requires the abstract and comparative manipulation of form within the general realm of architectural possibility, and that this exploration and this exercise of intellectual choice has been successfully accomplished." (Hillier, 2007, p.33)

So architecture is at once an intentional mental act and a property we see in things. It is not simply the observation of what is done but also the recognition of how and why it is done.

Design can be defined as the action of conceiving of something before it is

made. Architectural design is the process of conceptualizing what a future building might be like. For most of its duration, the process is organized around a surrogate for the building in the form of a more or less abstract idea or representation. The design process is only a part of a larger, more complex process by which buildings come into existence, but it occupies a central position.

“The design function exists within the building process for one fundamental reason: because at all stages of the process — though with differing degrees of accuracy — the properties and performance of the building as it will be when built must be foreseen in advance, that is, they must be knowable from the surrogate. The design function is essentially a matter of stage-managing a constantly changing representation of what will eventually be a building, so that at all stages of the process there is in view a proposal for an object that does not yet exist, and which is probably unique — since if it were a copy there would be no need for design — but whose technical, spatial, functional and aesthetic properties if and when built are, as far as possible, predictable in advance. The design function in the building process therefore involves on the one hand searching out and creating a representation of a possible solution for the design problem in hand, and on the other the prediction of the performance of the building when built from the representation. The activities that make up the design process reflect this duality. Design essentially is a cyclic process of generating possible design proposals, then selecting and refining them by testing them against the objectives the building must satisfy — to be beautiful, to be cheap, to be ostentatious, to represent an idea, to repay investment, to function for an organisation by providing adequate and well-ordered accommodation, and so on. These two basic aspects to the design process can be called the creative phases and the predictive phases. In the creative phases the object is to create possible design proposals. In the predictive phases, the object is to foresee how proposals will work to satisfy the objectives.” (Hillier, 2007, p. 43-44)

So the architectural design process is the conceptualization of a building that does not yet exist. It is organized around a surrogate for the building: a mental and/or physical projection of the future building (see also Allen, 2009). The design process involves two basic activities: generating possible architectural design proposals and predicting the properties and performances of the proposals.

Hillier claims these activities take place in or constitute a cyclic process. This however is generally contested, the prevailing view being that the architectural design process is not a cyclic, nor a linear step-by-step process. Most authors —and practitioners— agree designing architecture is a messy, unpredictable, chaotic and largely exploratory process of interdependent but often contradic-

tory discoveries (cf. Venturi, 1966; Alexander, 1971; Till, 2009).

Remark

This characterization of the architectural design process identifies the main relevant commonalities: the duality of creative and predictive phases, and the necessity of some kind of representation.

Due to the dual nature of the design process, principles can contribute to the process in two distinct modes: they can help the search for possibilities to generate designs and help to predict their performances. In the creative phases they might tell the designer where to look for candidate solutions in an otherwise vast and unstructured solution space, while in the predictive phases they can tell how a particular solution will work. So principles can fulfil two needs: to open up or guide the search for design possibilities and to allow a better assessment of the design outcome.

To open up realms of possibility, principles are preferably as unspecific as possible about specific solutions, in order to leave the solution space widely open to creative invention. As aids to the creative phases, principles should be generative. Such principles deal with the artistically possible. They can be very diverse and may encompass providing alternative possibilities, challenging guiding assumptions, suggesting reconsideration of what is taken for granted, advancing existing knowledge and articulating implicit knowledge.

To allow a better assessment of the design outcome however, principles should be analytic: they should be as specific and rigorous as possible about the properties and workings of a particular solution. To be able to formulate analytic principles, there must exist objective regularities in the outcomes of the architectural design process.

Since previous parts of this research (2. Theoretical framework) have already demonstrated that objective regularities probably don't exist in case of experiential qualities, there is presumably no ground whatsoever for formulating generally valid principles that help predict the experiential outcomes of a particular architectural design. Therefore, principles on experiential qualities that may be of use for architectural design are very likely generative by nature.

Hillier states that the properties and performances of the building must be – as far as possible – knowable from the representation. This means all intended properties and performances must be represented in some way or other. This of course also applies for experiential qualities. It suggests that complementary tools or techniques that allow to better cope with experiential aspects dur-

ing the design process are to some extent representational.

Remark

Interestingly, Hillier includes the intentions of the designer as an inherent property of architecture. He states that when experiencing architecture, we not only perceive what is done, but also recognize to some extent how and why it is done. A similar view is presented by H.F. Mallgrave who states that "... occupants of a building also read the presumed intentions of architects, ... much of this reading may take place at a precognitive level ..." (Mallgrave, 2013, p.162). If correct, it implies that the intentions of the designer are a factor that must be included when researching experiential qualities of architecture.

3.4 REPORTS OF ARCHITECTURAL DESIGN PROCESSES

As mentioned in paragraph 3.2 Methodology, identification of gaps and needs in architectural practice to address experiential factors requires a double approach: on the one hand a research of reports of architectural design processes, and on the other hand a close observation and analysis of design processes as they happen. This section will focus on the former.

3.4.1 A shortage of suitable reports

The first task at hand was obviously to collect an amount of suitable reports. The search started by listing contemporary architects whose designs demonstrate an affinity to experiential qualities, proceeding from my personal frame of reference. In those cases where this affinity (or at least an effort to address experiential qualities) is also explicitly acknowledged by the architects themselves, I searched for reports of design processes, applying only two criteria. Since the aim here is to expose what is missing in design practice, reports must -at least partially- give an account of actual design processes. They have to contain observations of or testimonies from practicing architects about how they go through architectural design processes. Universal context-independent theories and models that formalize the architectural design process do not provide relevant data because their reductive artificial nature necessarily makes abstraction of the specificity of design practice.

The second criterium for selection implies that the testimonies contain information about experiential qualities as a conscious focus of the design process.

The resulting list of architects who qualified for further research contained

both Belgian and international architects such as Marie-José Van Hee, Robbrecht & Daem, noA Architecten, Coussée & Goris, Peter Zumthor (CH), Valerio Olgiati (CH), Eduardo Souto de Moura (PT), Caruso St. John (GB), Sergison Bates (GB), Tadao Ando (JP), Junya Ishigami (JP), Steven Holl (US), Rick Joy (US).

Since most of the listed architects are prominent contributors to contemporary architecture discourse, and their activities and oeuvre have been covered in a variety of architectural publications, it was expected that a considerable amount of reports of actual architectural design processes would be readily available for study. This was not the case. Despite the extremely modest list of criteria, it proved surprisingly arduous to find any suitable report. Most reports only mention that the architects do take experiential qualities into account when designing, but more often than not fail to describe how this is done.

For example, on the website of Caruso St. John (www.carusostjohn.com), the architects state that: “The practice resists the thin-skinned abstraction that characterises much global architecture in favour of buildings that are perceived slowly over time and that have an emotional content. ... Sophistication is achieved by the careful refinement of details and a distillation of ideas to create a particular atmosphere. Exteriors have a sensitivity to sometimes fragile settings whose character has evolved over time, while interiors have a specific and particular atmosphere appropriate to their purpose.” Also on their website, they publish texts like “The Emotional City” and “The Feeling of Things: Towards an Architecture of Emotions” in which they articulate a genuine concern for an experientially qualitative built environment. But an extensive literature search did not provide information on how the practice addresses the theme in the design process. Both in publications and in lectures (A+, 2011; RIBA, 2015; Columbia GSAPP, 2016) a number of references and key themes -among which emotional content- that reappear in their oeuvre are discussed and analysed. But I did not find published reports on or reflections of actual design processes.

Since gaps not only manifest themselves when explicitly mentioned, but also in what people fail to mention, the striking shortage of available reports triggered the need to firstly examine its underlying causes. The reasons for the shortage may already provide clues about the gaps and needs in architectural practice this part of the research aims to identify. Surely, architects not attesting to an important aspect (experiential qualities) of an essential part of their profession (design), may point to some shortcomings or defects.

One of the reasons was already mentioned in paragraph 1.1 Problem state-

ment: the architect's perspective on space. The architect primarily deals with quantitative internal properties of space, thus disfavoured non-quantifiable and subjective –in casu experiential– factors. In other words, experiential qualities are seldom regarded as an explicit, conscious focus of the design process.

Another reason lies in architects' general attitude towards design methodology. The relationship between architectural practice and theory in general, and between architectural design practice and design methodology in particular, has habitually been at least slightly awkward. When in the 1960s researchers started to take a scholarly view of the process of designing, there was a desire to approach design in a scientific manner. Typical design research included management-like or prescriptive models of the design process, aiming to develop systematic methods to rationalize the process. Already in the 1970s, many designers and theorists rejected a rationalized design methodology, among them influential figures as Christopher Alexander. "There is so little in what is called 'design methods' that has anything useful to say about how to design buildings that I never even read the literature anymore... I would say forget it, forget the whole thing." (Alexander, 1971) And despite some valuable efforts in the following decades to reconcile design research and design practice (e.g. Schön, 1983), Alexander's statement stood firm among designing architects. Up till now, architectural design research remains a largely autonomous practice, remarkably disengaged from the complex preoccupations of design practitioners. No wonder the importation of theoretical models in the design practice has led to many disillusionments and is still largely frowned upon (cf. post-criticism's aversion to theory).

The profession's scepticism applies especially to the realm of experiential qualities, which have been generally (mis)conceived –if not neglected at all– by architecture theorists as 'merely aesthetic' matters of subjective judgement and taste. Inferior to more rational and objectifiable matters, they have been treated primarily as secondary enterprises. So why would architects, already reluctant to theorization, consider theoretical discourse on a topic that is commonly perceived as a minor, nonpractical dimension of human life, having little relevance to architecture in general and even less to designing it?

In recent years, the situation is changing for the better, both in the way researchers are conceiving of design or of experiential qualities and in the way practitioners perceive the research. Still, the divide between practice and theory is far from bridged.

Additional reasons, related to architects' attitude towards design methodology, can be found in what and how architects communicate. Many architects, when inquired for reasons to explain their design actions, are either unable

or unwilling to answer questions. The latter often because of a variety of reasons amongst which vanity. The former because architects typically learn to design without acquiring the ability to scrutinize and describe their design actions. Focused on the design outcome, few architects are accustomed to reflect on their design activities. And with no tools readily available to represent mechanisms of design activities, architects usually struggle to explain how they do what they do. Many design operations are heedlessly labeled as 'intuitive', and probably rightly so. But the origin and nature of the intuitive actions are seldom inquired and almost never communicated.

Other possible reasons stem from the nature of the architectural design process itself. As mentioned, every design process is a unique process with many stakeholders involved. Architects seldom initiate the process, rarely set the conditions, and almost never make all decisions autonomously. Moreover, most architectural design problems can be labeled as 'wicked problems': problems that are resistant to resolution. Every design brief inevitably consists of unspecified issues, contradicting concerns, competing interests and indeterminate goals. Designers continuously position and reposition the problems and issues at hand. A design process necessarily undermines its own inception since all design solutions, which are inherently exploratory, are in themselves a test of the hypothesis of the brief. An architectural design process is not simply the clapping of solution on to problem, but is a process of discovery in which modalities and variations are explored until the rules have been established- and the points at which they are to be broken. Additionally, the process runs on many -both conscious and subconscious- levels over a stretched period of time. Not confined to the periods spent on the drawing board, it can evolve anytime and anywhere, even when the architect is not explicitly working on the project.

As a result, an architectural design process is not a linear step-by-step process, it 's a discontinuous mess. This messy complexity (cf. Venturi, 1966) makes it a difficult -because incoherent- story to tell (or topic to research). It is extremely hard to pinpoint when, why and on what basis actual design decisions are made and to determine their contribution to and impact on the final result.

The above already hints on directions in which to search for identifying gaps and needs in architectural practice.

Firstly, it confirms the statement that systematic or explicit knowledge on the subject seems to be largely lacking. Although the experiential dimension has recently gained interest by a rapidly growing number of architects and architectural researchers (1.1 Problem statement), so far architecture discourse has

for the most part failed to adequately address experiential qualities of the built environment. This applies especially for coping with them during the design process. The failure seems largely due to two misconceptions.

The first misconception concerns the nature of design research and its contribution to the architectural design process. The prevailing idea has historically been that theory should seek to describe regularities that are universally valid in order to provide prescriptive models, allowing to accurately assess the properties of the design proposal. These normative theories however constrain the design process and narrow it down to its predictive phases, ignoring more generative possibilities that address the creative phases. The second misconception follows from the first. Since experiences are per definition specific and variant, they don't yield to objective regularities and are not reducible to simple rules. As such, they have been largely treated as accessory, unfit topics for design research.

It follows that architectural design practice lacks knowledge on how to address experiential qualities. By absence of applicable models or principles, architects can only rely on intuition and references to known cases. And since documentation of cases of practitioners are almost non-existent, the architect's frame of reference is largely limited to his/her own experiences. Relying on personal precedent is necessary but insufficient to generate possible solutions for practical design activities because it severely limits the search for possibilities and forms a too narrow base for making design decisions.

What is needed is generative theory that supports the creative processes. Architects would benefit from research that describes and analyses specific cases. Not to deduce general laws that tell architects how to design in order to create experientially rich buildings, but to draw attention to possibilities, to certain properties of the built environment and of the design process that might otherwise be missed.

Secondly, and maybe partly resulting from the previous, there seems to be reluctance and restraint among practitioners to communicate about non-objective aspects of the design process. Addressing experiential qualities is regarded as a personal, intuitive matter not worth scrutinizing or discussing. This attitude however seems to be solely self-sustaining. If Hillier (1996) is right in stating that architecture is a not only a product but also an aspiration, then explicitly formulating experiential qualities as part of the intentional objectives of architectural design would make them an inevitable part of architecture itself.

To allow architects to do so requires validating experiential qualities for what they are and recognizing their relevance to architecture. Also, architects concerned with the experiential qualities of their designs, should be provided with adequate tools or means to communicate this intent, even if only to

themselves. To this aim, research should not only focus on what architects do, but also on how architects (can) communicate what they do.

3.4.2 The cases of Steven Holl and Peter Zumthor

The search for suitable reports of architectural design processes that to some extent incorporate experiential qualities as a conscious focus, is deliberately limited to contemporary architecture. Firstly, because the aim here is to accurately expose what is missing in architectural practice in order to ameliorate it. What is implicitly but clearly understood by 'architectural practice' is 'present architectural practice'. Obviously it can not be the aim to ameliorate past architectural practice. And since architectural practice has dramatically changed in the last decades, what contemporary practice lacks may not all be unique but is at least particular and partly resulting from the current conjuncture. Secondly because -as mentioned- architectural discourse has traditionally focused on the design outcome (the buildings) and only started to take interest in the design process itself in the 1960s. Ofcourse, many architects that practiced before the 1960s have become renowned for creating exceptionally rich or refined experiential buildings. But even in the few cases where the design process was indeed documented and researched, there exists no information whatsoever on how experiential qualities were addressed apart from by personal intuition, sensitivity or innate talent.

Further research confirmed the finding from the exploratory research that suitable reports are scarce. Even after extensive literature research -comprising publications, interviews and lectures-, only few contemporary reports that fit the criteria could be found. It also became quickly apparent that the few suitable reports do not explicitly mention the gaps and need this research aims to identify. Since almost all of them focus on explicating the workings, dynamics, methods, and driving forces of design processes rather than on expressing what did not work and why (except when it concerns budget, timing or conflicting objectives among the project's stakeholders), making a list of desiderata could not be done by copy-pasting them from the reports. The initial intention -to search in architecture discourse for gaps and needs that have already been identified- seems to be based on an overoptimistic expectation of the actual research situation. A more indirect approach is required.

The bulk of suitable reports sprouts from two renowned architects: Steven Holl and Peter Zumthor. They have both published texts on their design activities, have been interviewed extensively and are sought-after speakers for lectures and symposia. Since both are famous for successfully and more (Zumthor) or less (Holl) continuously designing highly 'atmospheric' build-

ings, one can assume they have -at least partly- succeeded in overcoming the missing factors this research aims to identify. By analysing their testimonies of design methods and processes, it may be possible to identify peculiar characteristics and features that point to personal, specific solutions to more generally valid problems. So after the futile attempt to directly search for gaps and needs in a variety of testimonies and reports, it seems more adequate to indirectly trace or deduce them by analysing the discourses of Zumthor and Holl on architectural design. A possible benefit of this detour might be that the specific personal solutions may already suggest more generally relevant considerations, principles or techniques that allow to better cope with experiential aspects during the design process.

Method for analysis

It is not the aim to fully describe or reconstruct the design processes of Holl and Zumthor. Even if that would be possible, which is far-fetched due to their uniqueness, complexity and duration, it is unnecessary since they comprise many aspects unrelated to this research. This analysis specifically intends to identify features Holl and Zumthor mention in their discourse that point to personal, specific solutions to more generally valid problems related to addressing experiential qualities.

Autobiographic publications, lectures of and interviews with Holl and Zumthor are collected and scrutinized, in order to identify relevant statements. When similar and largely overlapping statements appear in different sources, the most distinct or transparent statement is selected. The relevant statements are then categorized according to their overall content.

Features of the design process can be broken into at least two major categories: substantive knowledge and process skills. These two categories are necessarily intertwined but distinguish essential competences and abilities to design. Substantive knowledge refers to what a designer knows and process skills to what a designer does.

Substantive knowledge is content based and comprises among others:

- Design memory and precedents: the way in which the personal history is understood
- References: knowledge and understanding of architectural achievements and those of related professions
- Recognition, understanding and use of theories, types and rules

Process skills are those competences designing architects need to implement, modify or express design knowledge and to put design work into a form

where it can be observed and understood by others. They comprise:

- Graphic representation: sketching, free-hand and geometric drawing, 3D modeling and animation
- Abstract representation: making schemes, graphs and diagrams
- Model making
- Textual communication: writing and speaking about the design work

Initial categorization of the relevant statements showed an additional category needs to be added. Since designing architecture is by definition an intentional act, the aspirations of the designing architect play a determining role in the process and have to be considered (cf. Hillier, 1996). Next to 'knowledge' and 'skill', 'intention' forms the third category.

When identified and categorized, the statements are interpretatively analysed by category with the aim to uncover more generally valid problems relating to dealing with experiential qualities. If required and possible, the interpretations of the statements are verified by matching them against secondary sources.

Analysis

This section gives an overview of the case-studies, mixing (a selection of) the relevant statements and their interpretative analysis per category. It starts with a brief introduction of the architects.

Steven Holl leads an internationally-honored architecture and urban design office working from New York City and Beijing. Considered one of America's most important architects, his work ranges from private residences to large, urban-scale commercial projects.

In the mid 1980's, Holl's architectural focus has undergone a shift: originally developed from considerations of formal, contextual and typological order, his projects have since then evolved out of a more phenomenological concern. Out of a keen interest in the writings of Merleau-Ponty, Holl's vision and approach have altered from stylistic and typological to phenomenal and poetic. This transformation is not only apparent in his body of work but is also clearly reflected in the way he describes his design processes. In doing so, he clearly avoids formulating a methodology for designing architecture but rather articulates strategies for what he calls "the subjective-intellectual -creative process of architectural design".

Peter Zumthor was trained as a cabinet maker from 1958 to 1962 and subsequently studied architecture and design in Switzerland and the US. He established his own architecture practice in 1979 in Haldenstein, Switzerland

where he still works with a relatively small staff. His tiny but uncompromising oeuvre and his withdrawn character have earned him a near-mythical reputation among architects.

Arguably the most renowned and influential architect focussing on experiential qualities, Peter Zumthor is above all else a master practitioner with -to put it mildly- only a slight interest in theoretical discourse on architecture and on design. Still, despite manifestly giving precedence of practice over discourse, as professor and one of the most honoured and awarded contemporary architects, Zumthor has published and lectured on his approach on architectural design.

On knowledge

Our experience and sensibilities can evolve through reflective and silent analysis. To open ourselves to perception, we must transcend the mundane urgency of "things to do". We must try to access that inner life which reveals the luminous intensity of the world. (Holl, 2006, p.40)

To open architecture to questions of perception, we must suspend disbelief, disengage the rational half of the mind, and simply play and explore. Reason and skepticism must yield to a horizon of discovery. Doctrines cannot be trusted in this laboratory. Intuition is our muse. (Holl in Migayrou, 1998, p.21)

The design process is based on a constant interplay of feeling and reason. The feelings, preferences, longings, and desires that emerge and demand to be given a form must be controlled by critical powers of reasoning, but it is our feelings that tell us whether abstract considerations really ring true. To a large degree, designing is based on understanding and establishing systems of order. Yet I believe that the essential substance of the architecture we seek proceeds from feeling and insight. Precious moments of intuition result from patient work. (Zumthor, 1999, p.21)

The strength of a good design lies in ourselves and in our ability to perceive the world with emotion and reason. A good architectural design is sensuous. A good architectural design is intelligent. (Zumthor, 1999, p.65)

Zumthor and Holl acknowledge the importance of knowing and understanding their own work and that of others (references), and the relevance of more abstract knowledge in the form of theories, types and rules. They recognize references and abstract knowledge together form an indispensable body of knowledge for designing architecture. Still, they regard this body of knowledge as insufficient and extend architectural knowledge beyond the limits

of the cognitive realm. What is essentially required to initiate and drive the design process is architectural intelligence rather than knowledge. This intelligence is based on knowledge that is incorporated instead of simply understood and necessarily also includes intuition, personal sensibilities, and feelings. Architectural intelligence is both and simultaneously objective and subjective. It is a form of professional intuition that, when developed to a level of true craftsmanship, forms the essential driving force of the design process. (cf. Schön, 1983; Sennett, 2008)

Going in and walking through architecture is extremely important. That's when you are studying it. If you go and see it and make your own mind up about it, you will never forget the experience. (Holl in an interview on Phaidon)

As a consequence of the text of the ideas being written before the development of the plans and sections I am not inclined to write any further text after the building is complete. ... I am, however, very interested in critical texts written after a building's realization. A thriving culture of architecture depends on insightful 'reading' of the experience of architecture. (Holl in Cecilia, 2003, p.59-62) Today publications on architecture are particularly problematic. (id., p.69)

Certain physical interactions offer zones of investigation: color projection is experienced when light, reflected off a brightly colored surface, then bounced onto a neutral white surface, becomes a glowing phenomena that provokes a spatial sense. ... In experiments with these phenomena we have discovered an emotional dimension that suggests a psychological space. ... Phenomenal zones likewise open to sound, smell, taste and temperature as well as to material transformation. (Holl in Migayrou, 1998, p.21)

The roots of architectural understanding lie in our architectural experience: our room, our house, our street, our village, our town, our landscape -we experience them all early on, unconsciously, and subsequently compare them with the countryside, towns, and houses that we experience later on. The roots of our understanding of architecture lie in our childhood, in our youth; they lie in our biography. (Zumthor, 1999, p.65)

Once you start a phenomenological pursuit of beauty, of moments, you look at your personal life: "When do I experience beauty? When do I have these moments of sensation of beauty? When do I feel this beauty?" (Zumthor in an interview in The Architect's Journal, 04.2009)

Design intelligence aimed at experiential qualities is not an invariable innate capacity, it can be enriched and nursed:

- by reflecting on the personal experiential biography: sensuous memories, stored experiences, memorable events.
- by training personal abilities to perceive the world -with reason and emotion- by consciously and critically adopting the user-perspective: bodily experiencing architecture, art, situations in everyday life, ... and reflecting on the experiences.
- by reflecting on the personal design processes and assessing and studying the built results when in use.
- by researching experiential reviews on architecture.
- by scientifically and empirically investigating perceptual phenomena.

The materials of architecture communicate in resonance and dissonance, just as musical instruments in composition. Architectural transformations of natural materials, such as glass or wood, have dynamic thought and sense provoking qualities. ... Materials form the tools that allow communication of a concept in the experience of an architectural work, regardless of its size. (Holl in Migayrou, 1998, p.31)

To me, there is something revealing about the work of Joseph Beuys and some of the artists of the Arte Povera group. What impresses me is the precise and sensuous way they use materials. It seems anchored in an ancient, elemental knowledge about man's use of materials, and at the same time to explore the very essence of these materials, which is beyond all culturally conveyed meaning. I try to use materials like this in my work. (Zumthor, 1999, p.8-10)

Materials and the way they are brought together are the elements architects work with. Concrete knowledge of materials, combinations of materials, and construction are indispensable when designing architecture. Both Zumthor and Holl acknowledge the importance of knowing how things are made -and how they are made well- and of knowing what they are made off. However, they both stress this knowledge is insufficient. Of equal importance is the additional knowledge of the perceptual qualities (character, aura) of materials and construction: of 'knowing' how materials and tectonics are perceived through different scales appearing in a project. (cf. "Materie und Materialität", Böhme, 2006) Also this knowledge is intuitive rather than cognitive.

On skill

Both architects state that they never use plan/section drawings as a design tool. These drawings cannot sufficiently indicate the phenomenal dimensions of architecture and thus are inadequate as a generative design tool and as a means of communication. They only work properly as a quantitative notation

instrument.

From the outset of my practice, I have worked with diagrams. ... The idea of the sketch is too strongly tied to the idea of architecture as a visual art. While I acknowledge that there is a strong visual component to architecture, I believe it to be a much richer art form, one that entails not only the visual, but the conceptual, the haptic, the phenomenological, the social and more, much more. ... I think of the diagram as an instrument that operates from the onset with the full spectrum of the architectural palette. I not only see the diagram: I feel it, hear it, smell it. (Holl in Cecilia, 2003, p.7-8)

Architectural drawings try to express as accurately as possible the aura of the building in its intended place. But precisely the effort of the portrayal often serves to underline the absence of the actual object, and what then emerges is an awareness of the inadequacy of any kind of portrayal ... If the naturalism and graphic virtuosity of architectural portrayals are too great, if they lack "open patches" where our imagination and curiosity about the reality of the drawing can penetrate the image, the portrayal itself becomes the object of our desire, and our longing for its reality wanes because there is little or nothing in the representation that points to the intended reality beyond it. The portrayal no longer holds a promise. It refers only to itself. ... I continue working on my drawings until they reach the delicate point of representation when the prevailing mood I seek emerges, and I stop before inessentials start detracting from its impact. (Zumthor, 1999, p.12-13)

Instead, they produce coloured diagrams and sketches that incorporate ideas about light, color, texture, use, and other qualitative features, especially at the start of the design process (Holl in watercolor, Zumthor often in mixed media). These diagrams and sketches allow to develop, capture and express intent. They mainly serve to identify and delimit a 'zone of inquiry': the concept or the organizing idea. The concept thus contains qualitative features from the start of the design process. They are not added later on to an initially abstract idea.

Holl additionally uses collages of perspectival drawings from eye-level, prior to plan and section, to include temporal aspects (movement).

In the intertwining of the larger space with its forms and proportions and the smaller scale of materials and details lies architecture's power to exhilarate. Such phenomenal territory cannot be indicated in plan/section methods. Photography can only present one field clearly, excluding changes in space and time. ... The traditional drawing of a plan is a blind notation, nonspatial and nontemporal. Perspectives of overlapping fields of space break this short circuit

in the design process. Perspective precedes plan and section to give a priority to bodily experience and binds creator and perceiver. ... Models constructed in plaster, wire, acid-transformed brass, and other construction materials balanced against a range of perspective views set an intermeshing design process in motion. (Holl in Migayrou, 1998, p.26)

Zumthor and Holl also construct models made in carefully chosen materials -often construction materials- from the onset of the design process. Initially however, they are not constructed as a portrait or a representation of the intended actual object. During the design process, they can serve different purposes: to propel the design process (as an inventive or generative tool), to study clearly demarcated aspects of the design (tectonics, light, materiality, ...) that are beyond the scope of technical drawing techniques, to allow communication on and verification of qualitative aspects of the design. As such, models are not constructed as scaled down and abstracted versions of the building (full building in cardboard or wood) made to seduce a client but as concrete study objects in and by themselves. (Havik, 2013, p.83-92)

All the design work in the studio is done with materials. It always aims directly at concrete things, objects, installations made of real material (clay, stone, copper, steel, felt, cloth, wood, plaster, brick). There are no cardboard models. (Zumthor, 1999, p.66)

On intention

Question of architectural perception underlie questions of intention. The intentionally sets architecture apart from a pure phenomenology that is manifest for the natural sciences. Whatever the perception of a built work -whether it be troubling, intriguing, or banal - the mental energy which produced it is ultimately deficient unless intent is articulated. (Holl, 2006, p.41)

I would say that I am very interested in the philosophical nature of ideas as an origin (for design), but I could not stop there. My struggle is to try to find the phenomenal potential of the idea. (Holl in Cecilia, 2003, p.21-22)

That is the first transcendent level in my work: the attempt to conceive of architecture as a human environment. (Zumthor, 2006, p.63)

In cooperation with our clients, we question and examine the specifications of the initial program: we confirm, reject, revise, and add to them. Thanks to this procedure, when we have finished our work on the design, we know more than we did at the beginning. As an architect I am an author. I do not want to find

forms for content that leaves me no room to do any thinking on my own and that I cannot influence in any way. Every architectural design must be able to question abstract specifications, because one can determine whether abstract preliminary thoughts will work only when they acquire concrete, physical shape. (Zumthor in Durisch, 2014, p.11-12)

Both architects emphasize they create architecture that only (Zumthor) or predominantly (Holl) serves as an experiential human environment. Their architecture is not conceived as a form of stylistic experimentation or any kind of rhetorics, but as a concrete corporeal place. During the creative phases of the design process, they focus on phenomenal qualities (through use) as the main criterium for searching for possible design options and solutions.

This focus implies architectural design should not start from preconceived images or formal idioms. It should not be about form finding and surface shaping with a fixed vocabulary, but about a critical exploration in basic questions arising from assignment, site, purpose, use and materials in order to create a new reality that exploits its full phenomenal potential. To Zumthor and Holl, designing is not formal invention based on (the architect's or the client's) stylistic preferences, it is developing architectural forms and objects guided by phenomenal inquiry.

It also implies they do not accept the design brief as a given, but consider it as part of a field of inquiry. For both Holl and Zumthor it is essential that an architectural design must be able to critically reinterpret the abstract conditions and specifications of the assignment.

They also stress the importance of the quality of the built work on all scales. They highly value the skills of craftsman-builders and aim to design constructions that merit these skills. It seems to them, the quality of construction (tectonics, joints, detailing, materials) as such is -next to being a matter of professional ethics- a key experiential factor.

The space of a single room, like the vast space of a city, is defined by juxtapositions of matter. The stuff of which something is made has emotive qualities. ... Architecture of matter and tactility aims for a "poetics of revealing". Revealing requires an inspiration of joinery. ... The link of perception through matter to the tactile is taken up in an effort to to create qualities over quantities. Through an awareness of the necessity of craft in construction, we question the concept of our art. In ancient Greece, art was fused with the tasks of life. The word techne referred simultaneously to art, to a sense of philosophy, and to the skills of a craftsman. (Holl in Cecilia, 2003, p.87)

I feel respect for the art of joining, the ability of craftsmen and engineers. I am

impressed by the knowledge of how to make things, which lies at the bottom of human skill. I try to design buildings that are worthy of this knowledge and merit the challenge to this skill. (Zumthor, 1999, p.11)

3.4.3 Preliminary conclusions

In order to identify gaps and needs in architectural practice to address experiential factors during the design process, I searched for reports of architectural design processes in architecture discourse. Since initial exploratory research demonstrated such reports are extremely scarce, the causes for this remarkable shortage were examined.

This examination already reveals that the problem does not exclusively relate to design practice but also concerns architects' perspective on space, their general attitude towards design methodology, and the poor status and validation of experiential qualities in architecture discourse and research.

More concretely, the examination hints on directions in which to search for identifying gaps and needs in architectural practice. Firstly, designing architects could benefit from generative theory in the form of research that describes and analyses specific architectural cases in order to draw attention to possibilities, to certain properties of the built environment and of the design process that might otherwise be missed. Secondly, architects could be provided with adequate tools or means to communicate experiential intent when designing.

Further research focused on the design processes of Steven Holl and Peter Zumthor. The case-studies point to additional shortcomings and allow to verify and specify some of the earlier speculative findings.

The case-study research confirms the importance of distinctly and clearly articulating the aspiration of creating qualitative experiential environments and the difficulties architects encounter when trying to do so, whether for themselves or for others. A proper theoretical basis is largely lacking and also the conventional notation instruments -plan/section, isometric perspective drawing, abstract modelling- do not provide the means to accurately conceive (generative tool) or express (communication tool) the experiential features of an architectural design.

Also the lack of generative theory that may serve as a frame of reference, especially in the form of critical case-studies, is acknowledged.

The main contribution of the case-study research lies in what is generally (not) valued as knowledge in the culture of architecture. The cognitive realm is too often prioritized in architecture, reducing intuition, sensibilities and

feelings to second-rate qualities -innate when abound, merely a pity when not employed. When focusing on experiential qualities however, these capacities are of vital importance and form an indispensable part of the craftsmanship of the designer. They should be revalued as essential components of architectural intelligence, and designers should be stimulated to actively nurse and develop them.

Similarly, the experiential qualities of materials and construction should be given a higher priority as a field of inquiry in design, in addition to their quantitative and technical properties.

3.5 OBSERVING AND ANALYSING ARCHITECTURAL DESIGN PROCESSES

As mentioned in paragraph 3.2 Methodology, the part of the research that aims to identify gaps and needs in architectural practice consists of two parallel tracks. The first track, focusing on reports of design processes in architecture discourse, is covered in the previous section (3.4 Reports of architectural design processes).

This section reports on the second track, consisting of observational research of design processes as they happen.

Observing and analysing actual design processes can provide advanced understanding of concrete gaps and needs in architectural design practice that cannot be obtained from theory. Via continued proximity to the studied reality and via feedback from those under study, the issue at hand can be explored inside and out (cf. Yaneva, 2009).

However, when setting up this research track, it became quickly apparent that observing actual design processes poses difficulties and raises issues that have to be considered.

Firstly, closely observing architectural design practice poses practical difficulties for both the researcher and the architect under observation.

Its discontinuous nature makes uninterrupted observation of the process practically impossible. Alternatively, meeting periodically to examine the ongoing design process requires of the architect to comprehensively and accurately document and communicate as much design decisions as possible. This inevitably burdens the architect in an already complex process.

Also, due to the complexity of the design process and the tangle of issues and concerns involved, it would take a disproportionate amount of time and effort from the researcher in relation to the expected amount of relevant data.

Additionally, the architect is rarely the only stakeholder involved in the design phases, and seldom the initiator. Even if all stakeholders would grant permission to observe all aspects of an ongoing design, by then the research would probably have missed some crucial stages.

Secondly, there are content-related problems.

The architectural design process largely consist of a tangle of mental processes –conscious and subconscious- over a relatively long period of time. As a researcher, only the representations of these processes (drawings, models, calculations, language) can be observed. The processes themselves remain largely hidden. What are an architect’s intentions when he/she draws a line? On what basis does he/she select a specific design solution? And why does he/she prefer a particular technique over some other? It is highly unlikely even the most patient and cooperative architect will be willing and able to scrutinize all these mental processes.

As a solution to this combination of obstacles, a tailored situation needed to be created. It had to approximate as close as possible the actual reality of architectural design practice, while allowing to research the process in depth. Such an opportunity was provided by setting up a graduation studio in architectural design under my supervision.

3.5.1 Setting up an architectural design studio

An educational architectural design studio poses some advantages in response to the difficulties and issues mentioned above.

- It allows to implement experiential qualities as an explicit design focus from the start of the process. They can be incorporated as a key requirement of the assignment.
- It can clear sufficient time for the student-designers to examine the ongoing process. Extensive documentation and analysis of the process as it happens can be included in the task.
- Regular meetings between designers and researcher can be easily scheduled and extensive communication on the design process –next to more result-oriented issues- can be systematically integrated.
- It allows the researcher to more or less exert control on the process by setting the initiative, defining start and end of the process, and co-supervise the different stakeholders.
- As the studio’s supervisor, the researcher can adopt an engaging, insider’s perspective without actively participating in the day-to-day design activities.

But setting up a design studio also raises some concerns.

First worry is the level of maturity of the designers involved. This concern is minimized as much as possible by setting up a design studio for graduation students only.

A more fundamental obstacle is presented by the research topic itself as it requires a reconsideration of what is traditionally regarded as the result or output of an educational design studio trajectory. In architectural design studio's, we necessarily -and willingly- make abstraction of reality. During design processes and as end results students mostly produce representations of architectural intentions: drawings, models and texts. It is common practice for students to develop fictitious architectural projects, based on a more or less specific design brief. But however useful and valuable this educational method has proven to be, its abstract nature inevitably advantages the use of abstract conceptual and quantifiable considerations as the main criteria for searching for design options and for deciding on design solutions. It disfavours a more phenomenal, experiential approach.

Also, the design intentions are never put to the test in real life and can safely remain self-referential. Whether the design is successful in achieving its intentions can only be speculated about. This particularly applies to the experiential qualities of the project -if considered at all- since a confrontation of the design result and its users will never happen.

Additionally, the speculative nature of their actions provides students the comfort of escaping responsibility, and to neglect those aspects they are less comfortable with or skilled in.

What is obviously missing here is the built result of the design process. But, actually building the large-scale architectural designs made by graduate students for educational purposes would obviously be far too expensive, complex, and time-consuming. So an explorative real-life alternative needed to be created, analogue to architecture but cheaper, faster and more flexible. The idea was to reduce the scale of a usual master-project but allow more diverse complexities by designing and building relatively small temporary constructions on a 1:1 scale. These architectural installations can simulate (built) architecture in a compact, condensed fashion and as such offer freedom to experiment. Effectively building the installations also has the advantage that students are confronted with the consequences of their design decisions in a direct, non-abstract way. The experiential dimension cannot be evaded: it is inescapably there.

In 2013-2014, six master-students have worked in two groups of three students each on different projects. Both groups have built a construction in public space in Antwerp in June 2014. In 2014-2015, three students have individually designed and built an installation in the former slaughterhouse of

Antwerp. The installations formed part of an exposition in collaboration with students from In-Situ (KASK, Antwerp) in June 2015.

The design processes and results have been extensively documented and assessed by the students in three graduation scripts: one for each project in 2014 and a joint one in 2015.

Remark

The architectural design studio was set up early in the research trajectory due to pragmatic concerns and a presented opportunity (see next paragraph). When the first project started, the theoretical research was still in development and the applied empirical research (user perspective) hadn't even started yet. Also, the intention of this part of the research was only vaguely formulated at that moment: "to clarify what role experiential qualities can play in architectural design". I presumed it was necessary to observe actual design processes as they happen in order to find what I was looking for, but it wasn't yet clear what I was looking for. For educational purposes, this situation proved advantageous since it allowed the students to position themselves vis-à-vis the design brief by inserting personal interests and aspirations into the assignment. For research purposes, the lack of a clear focus made the whole enterprise rather slippery. Since I didn't know exactly what I was looking for, I was unable to steer the processes in such a way they would optimally yield research results. Also, since I did not know what form possible research results could take, I risked overlooking important data. The situation made it problematic for me to adopt a stable meta-position as a researcher, or to devise a consistent research procedure. Instead of trying to find steady ground, I opted for the opposite strategy and immersed myself in the projects as much as my position as a teacher allowed. I figured this position -together with extensive documentation of the processes by the students- would provide me with the largest possible reservoir of information to tap into once the research focus would become clear. The choice to start exploring from the inside out instead of from the outside in was thus a -then intuitively made- response to research conditions rather than a preconceived strategy. Though it might not have been the most productive strategy for this particular part of the research, I am convinced it has had a major influence -through the filter of my own personal development- on the entire research project (cf. chapter 5. Conclusion).

3.5.2 Brief descriptions of design processes and results

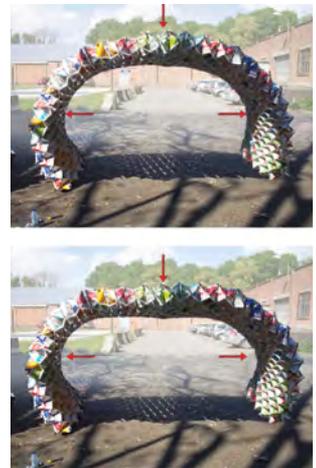
The descriptions of the students' designs is in no way intended to evaluate the results or the workings of the design studio. They are presented to provide a glimpse of the specific matter and contexts on which the following analysis

operates. Brief illustrated descriptions of the projects from intention to perceived result serve to render the design works in such a way design considerations, decisions and operations can be referred to concretely. In other words, they sketch a picture of the projects in order to avoid complete abstraction in the analysis.

2013-2014: Constructing Agency

At the beginning of 2013, the department of architecture at the university of Antwerp got a request from the 'Vredescentrum': a non-profit subsidized peace-organization that was the initiator and coordinator of the commemoration of WO-I in Antwerp in 2014. The 'Vredescentrum' wanted to set up a collaboration with architecture students in order to design contemporary interpretations of emergency shelters that could serve temporarily as exhibition spaces or meeting pavilions for the event.. No financial support was guaranteed to develop the pavilions, but the opportunity was seized as a concrete starting point for the design studio, which was named "Constructing Agency". In preparation of their graduation project, eight students initiated in February 2013 a theoretical exploratory research about the socio-cultural and tectonic nature of emergency constructions. The research led to the distillation of design-criteria and challenges for the actual graduation project. In the meantime, it became clear that the 'Vredescentrum' wasn't able to hold its position as the inspiring and supporting commissioner that we hoped for and somewhere in 2014 the collaboration ended. As the project's framework became less delimited and the initial focal point became a peripheral issue, more personal and affective issues gained interest. In October 2013, six master-students started working in two groups of three students each on different projects.

One of the projects (a social toolkit) quickly started to focus on architecture as a socio-cultural agent. Out of personal involvement and interest (and after prospecting eight organizations that were willing to collaborate) the students aimed to provide a class of new immigrant youngsters (OKAN Blauw) with the opportunity to demonstrate their particular societal needs through architecture. By developing a flexible system of cheap and adaptable building parts, the youngsters are to be given a toolbox to create temporary constructions that allow them the opportunity to voice, or better to actually show, what they hope for, miss, need. Through a series of four workshops, developed by the students in consultation with the OKAN teachers and staff, it was discovered that the youngsters first and foremost miss contact and participation outside their own small community. As a response to this finding, the project's acquired -quite predictably- a predominant activist character: giving exposure to the group of youngsters and having them participate in diverse cultural



events. On the other hand, the general character of the intention allowed great freedom in form, size, function and use of the built result. The only architectural requirement that remained stemmed from the assignment: the construction has to be accessible so it can be live experienced. Other requirements were mostly related to construction: materials must be cheap and easily available, assembly must be possible without any power-tool, the parts must be compact, re-useable and weather resistant. The design concept was formulated as follows: “A construction built from lightweight modular elements. The elements must be made from a recognizable, extremely cheap and largely available material. The structure does not have a preconceived form nor function: function follows demand.”

After the decision to use recycled Tetra Pak drink cartons, an intensive period of constructive experimentation took place. Strength of the material, deformations of the cartons, possible joints, formal combinations, light admittance and rigidity of construction elements, strength and durability of different elements and the overall construction, and speed of assembly were all extensively explored. Computer drawing and simulation were quickly abandoned in favor of material experimentation on a 1:1 scale. (CAD images however were created afterwards to document the process, often in combination with sketches, photographs and schemes.)

Several testcases were built on different occasions, exploring the structural, functional and social potential of the modular system. As end result, the students erected an ensemble of structures demonstrating the possibilities of their toolkit. In addition, they published an online step-by-step manual for dissemination of the idea and system. (www.steps4it.be/de-sociale-toolkit/)

The other project initiated from a fascination for the potential of movement/dynamics in architecture. In order to expand and organize the usual design process, the students established a collective with three dancers and a filmmaker: “het ULEVEL”. Through workshops, experiments and case-study research, they explored and examined how to create architecture when the relation between people and architecture is considered as dynamic, changing and affective. Movement became a means to look for alternative interpretations of architecture. After several months of research, a design intention was formulated:

“We aim to build a construction that interrupts the everyday trajectory of pedestrians in such a way that it alters the awareness of experiencing the trajectory. By luring people gradually into an unusual sensorial environment, we hope to construct a set of conditions that creates a state of heightened awareness. The construction focuses on the self-evaluative quality of experiencing:



Het ULEVEL presenteert PIT

PIT is een artistieke installatie waarin architectuur, dans, muziek en filmkunst elkaar ontmoeten. De interactieve en gevoelsmatige passage nodigt uit en doorheen te wandelen of even in te verblijven. Performers onthullen haar intrigerende mogelijkheden.

Dans Jutka Sauwens, Danae Bouman, Magali Costes
Muziek Laura Kunnis (viool), Sam Vertommen (gitaar)
Film Elliot Dehaese
Architectuur Cona Sauwens, Stien Schillebeeckx, Sola Tavirne // www.facebook.com/ULEVEL

Masterproject architectuur 2012, Universiteit Antwerpen, Faculteit Architectuur en Ontwerpende Techniek, Mentor en supervisor: Dirk Van Casterck en Hans Berckx, v.o. Sola Tavirne, 't-Gravenhof 6/1, 8000, Brugge

Installatie (vrije toegang)
 Dinsdag 17 t.w.m. vrijdag 20 juni 2014
 Graanmarkt, Antwerpen
 Bij regenweer op het Theaterplein

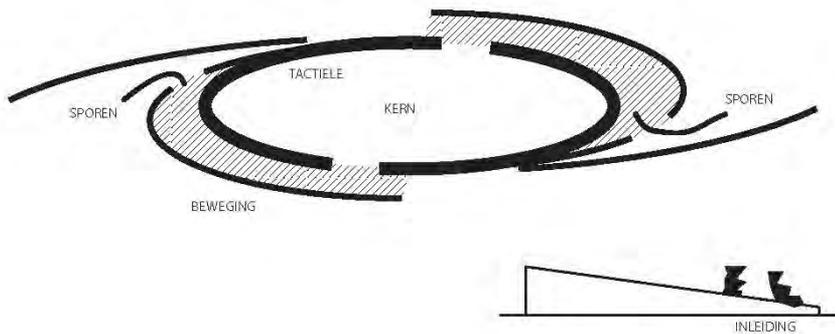
Performances (vrije toegang)
 Vrijdag 20 juni 2014
 vmt: 11u, 12u, 13u
 rmt: 15u, 16u, 17u
 avt: 19u, 20u, 21u

Nieuw mogelijk gemaakt door Tentoo Payroll Professionals en Antwerp Harbour Hotel.
 Delieve niet op de openbare weg te gooien.



on “*perceiving yourself perceiving*”. This quality offers people the opportunity to reflect on the experience while experiencing, and to reposition themselves in their environment. By disrupting a small part of a familiar trajectory, we want people to experience their daily environment in a fresh way.”

The intention was formally schematized in the image of a fyke or hoop net.



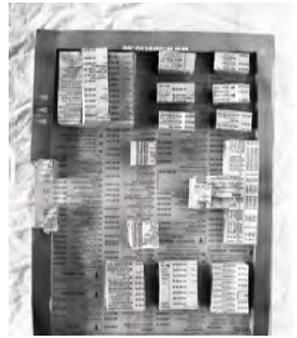
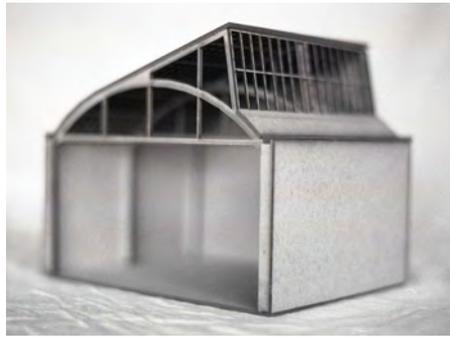
Ensuing much deliberation, nylon and tile laths were selected as construction materials for what had to become a flexible skeleton-structure. As the smallest module, 700 tetrahedrons were created out of 40cm long battens. After extensive testing of the structural, formal and spatial possibilities, a provisional construction was erected. This prototype was then collaboratively tested and explored on its weaknesses and potential.

A modified and extended version of the test structure -named PIT (Passage Interaction Tactility)- was built on the Graanmarkt in Antwerp in June 2014. A public event was created by hourly performances in and around the structure and reactions of passers-by and spectators were recorded.

The construction has since then been re-used in adapted versions on several cultural events. The collective is still active. (www.facebook.com/ULEVEL)

2014-2015: Abattoir In Situ

Based on a thorough evaluation of the previous master studio, a more concrete assignment was formulated in October 2014. The evaluation showed the studio could benefit from a given spatial context instead of the more general ‘public space’. As a location for the assignment, the former abandoned slaughterhouse in Antwerp was selected. The three participating students were given the task to design and build architectural interventions on the site that would accentuate or enhance the already quite spectacular experiential qualities of the place. A design studio was installed on site, with permission of the owner, in a squatted space.



The students started with a historic, morphologic and typologic research of the site. Research methods included literature study, interviews, case-study research, graphic analysis and design research.

When one of the immense halls was selected as the specific location for the interventions, the phenomenal properties of the hall and its immediate surroundings were studied. Contributing factors were identified, mapped, examined and documented.

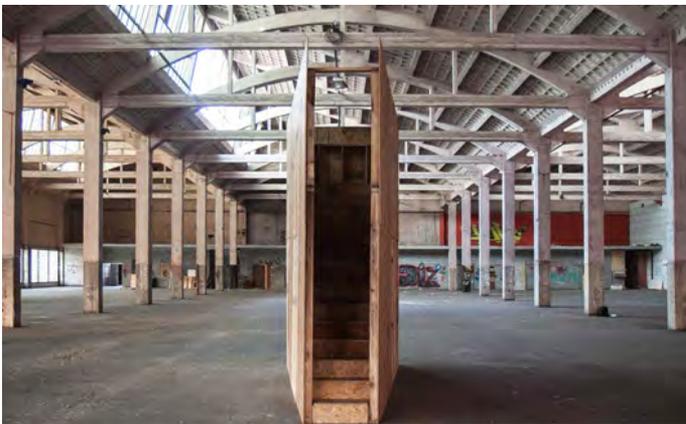
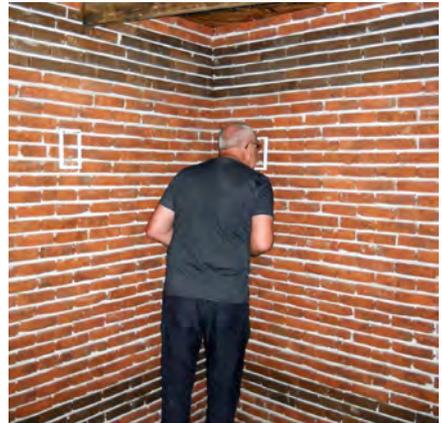
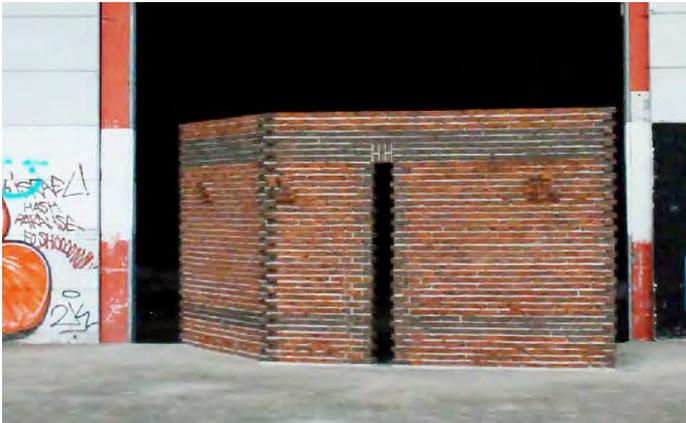
Due to tensions in group dynamics, in February 2015 the students decided to individually conceive and build his/her own intervention. Each one focused on those aspects of the halls architecture he/she found most intriguing: the spatial sequence between exterior and interior, the relation between scale and detailing, and rhythm and perspective as part of an interior landscape.

Designing the interventions proved to be a challenging task. Developing the intentions into a buildable architectural design proved to be extremely difficult for the students, despite the fabrication of series of models, freehand and computer drawings, and on-site experimentation on a 1:1 scale. Only when they had decided on the building materials and had the materials available on site, did the design process truly progress. The materials –wooden slats and beams, plywood sheets, 8000 handform bricks and 2500 extruded bricks– sparked a building process that incorporated the design process. Through the act of building, the students invented a form, explored possibilities, and adapted and improved what eventually became their built design. Once the process of ‘design by building’ started, they only created drawings, schemes or models to examine how to realize qualities they wanted to be specifically so: a particular view or shadow, the steepness of the stairs.

Annelies Gys created an income pavilion that layers the transition from exterior to interior. It accentuates the remarkable light conditions, scale and structure of the hall by creating a seemingly massive brick funnel as the main entrance portal. Its position and materiality refers to the building’s former main axis: a brick paved path running the entire length of the slaughterhouse.

Straight across the hall, Klaartje Heyvaerts built a kind of hunting cabin: a secluded brick pavilion with tiny holes that offer surprisingly framed views on a number of architectural details. The geometry of the pavilion follows the direction of the viewing axes. The concept is derived from the broken glass-brick panels that form part of the facades.

Oriented perpendicular to these two pavilions, Rutger Pompen constructed a tapered wooden staircase and viewing platform. It offers the viewer an unusual perspective on the surrounding interior landscape. The slightly unstable



but sufficiently strong structure triggers both a physical and a psychological experience. Climbing the stairs, entering the platform, and descending creates a conscious expectation that alters the perception of the hall.

The constructions were exposed to the public: fellow students, family, local residents, press. On the opening day of the exhibition on June 14th, the students interviewed approximately thirty visitors. The responses served as a baseline to confront intentions with reality.

3.5.3 Analysis of design processes

Analysing the complete design processes and results of the studio would go far beyond the reach of this dissertation. Although its practical, societal, artistic and in particular its educational aspects are richly interesting and thought provoking on multiple levels, they do not directly contribute to the aim of this research. In analysing the design processes, the focus lies on when and how the students explicitly dealt with experiential factors –whether or not successfully. The analysis therefore reports on those moments that can be identified as part of the design process that more or less address phenomenal aspects of the design. Of course these actions often also incorporate other, more objective, practical, quantitative, calculable considerations. But, in order not to expatiate, these considerations will be included in the analysis only insofar they impacted on the design operations as a co-decisive or altering factor. Relevant features of the design processes are categorized according to knowledge, skill, and intention. The categories correspond to those used in the case-studies of Steven Holl and Peter Zumthor (3.4.2).

Remark

The intention of this part of the research –to identify gaps and needs in architectural design practice- only became clear after the studio projects. Resultingly, this particular analysis of the design processes is done retrospectively, based on the students' documentation and my own experiences as the studio's supervisor.

Remark

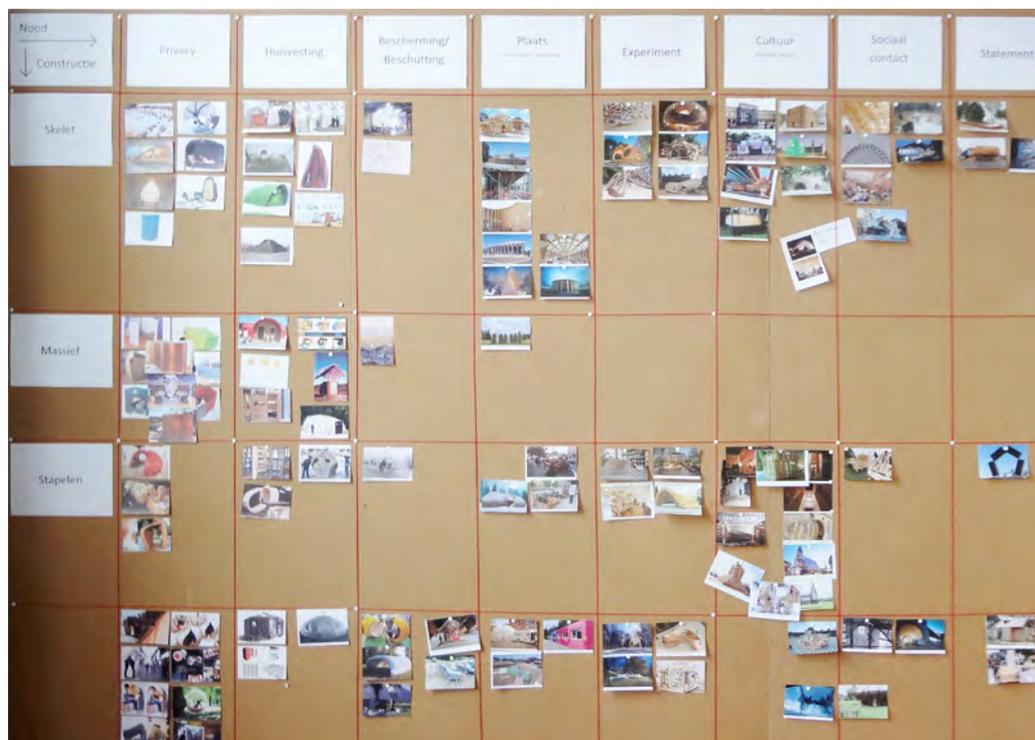
It could be argued that the design processes of the students, and thus also the shortcomings they indicate, predominantly manifest the gaps and needs that are representative for the architectural faculty rather than for contemporary architectural practice. Although this might be partly so, it can also be argued that architectural practice is too diverse to be fully covered by any sample.

Also, the architectural faculty is not a uniform entity. Before starting the graduation studio, the students have been mentored by approximately eight different practicing architects.

On knowledge

The extreme unease at tackling the general intention (to conceive of and design architectural space with a focus on its experiential qualities) indicates an immaturity regarding substantive knowledge. This is not surprising on the part of design memory and precedence, since the design biography of students is obviously limited. It especially counts for their personal history on experiential qualities of architecture: most students acknowledged this was the first time they explicitly dealt with them. More remarkably, they were also completely in the dark on architectural references and on architectural discourse on the topic –despite their deliberate choice for this particular studio for their graduation project as an architect.

The need for more substantive knowledge was addressed by the building up of a frame of reference and a quick literature study: related projects from architectural practice and installation art were collected and analysed, and relevant texts were studied (Bishop, 2005; Böhme, 1993; Bonnemaïson, 2009; Eliasson, 2007; Klanten, 2007; Pallasmaa, 2005; Vermeersch, 2013; Zumthor, 2006).



Still, the acquired knowledge provided little grip on the nature of the design task. It became clear the architectural knowledge and methods the students were accustomed to didn't suffice for successfully approaching the assignment.

"Because of our fear of making mistakes, we often reasoned in circles. After a while, our mentor proposed to temporarily omit theoretical considerations and to focus on our intuition. He suggested we started generating design ideas based on the formal image of the fyke (which represented the general design intention). He was convinced that this method would lead to ideas that would fit in our theoretical framework because we had already incorporated the theory. The method indeed turned out to be very productive. ... Because we seldom got the opportunity to make choices intuitively during our studies, we had not considered this option. Instead we habitually tried to rationally explain and schematize all our design moves." (p.181)

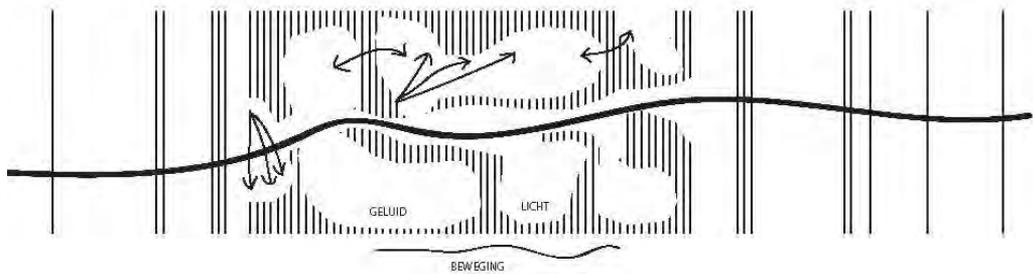
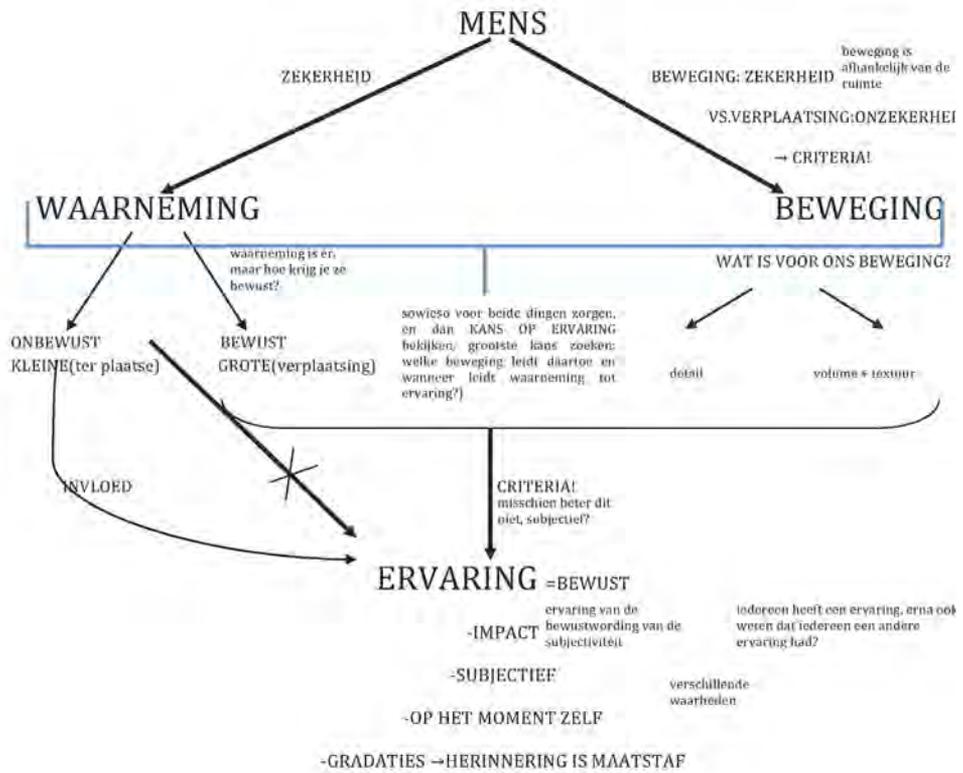
The 'fear of making mistakes' indicates a strong tendency towards a positivist approach: design choices and intentions are seen as right or wrong and can be assessed by a generally valid measure. From the very beginning of the design process, this frame of mind turned out to clash with the design task. Only when cognition was supplemented with intuition as a means to address the design task, did the design process effectively gain focus.

Still, for most students intuition proved difficult to exploit. Their unfamiliarity with deploying it as a driving force for design resulted in diffidence and timidity to step -partially- out of the cognitive realm, especially in the early stages of the design process.

When embraced however, in several cases intuition proved a prolific source of intelligence for defining intentions, searching for design options and making design decisions.

- For defining intentions it allows incorporating personal intentions, fascinations, interests and ethics.
- For searching design options it temporarily suspends the usual, almost automatic inhibitions originating from concerns such as feasibility, justification, cost and technicality.
- For making design decisions it proves particularly effective as a basis for elimination and shifting: for deciding what options not to use.

It must be noted that the initial diffidence also merits credit. Students distrusted intuition out of a common misconception: they restricted intuition to personal preference based on volatile feelings, allowing it to lapse into arbitrariness. This narrow interpretation indeed provides a slippery ground for designing architecture.



Intuition however is both and simultaneously subjective and objective: it is personal preference based on knowledge that is incorporated rather than merely known or understood. (cf. the concept of 'embodiment', 2.3 Perceiving subject) As such, it transcends random feeling and does provide a reliable source of generative architectural intelligence. Being the sum of incorporated knowledge, personal sensibilities, and feelings, it can be successfully applied during the architectural design process, even by little experienced designers. Still, in architectural education and practice, intuition is often distrusted as justification of design decisions due to the inevitable subjective part.

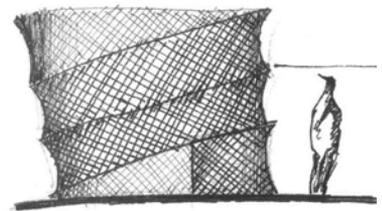
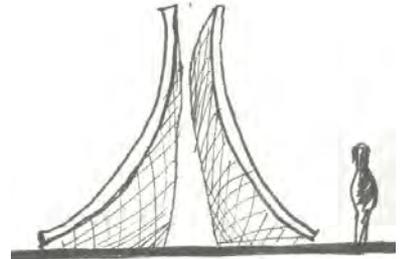
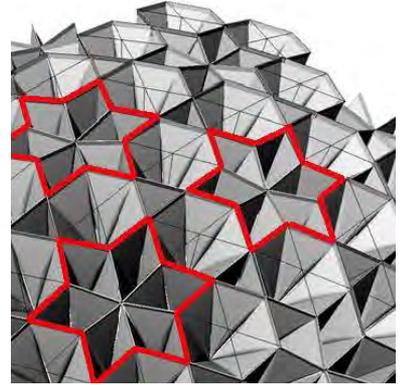
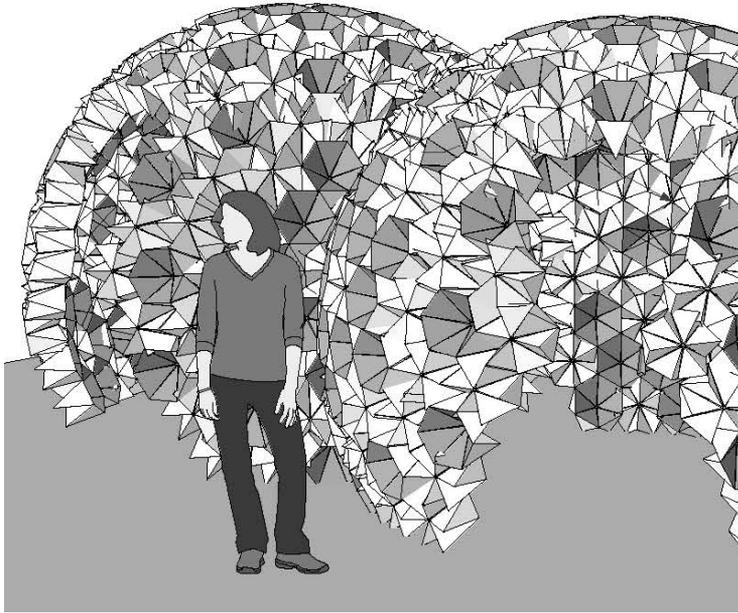
"We learned to thoughtfully implement our intuition in the design process. It gave us a different perspective on all the design processes we went through during our studies. ... We are eager to further explore the relation between rationality and intuition in the design process. ... One of us mentioned that intuitive choices have mostly produced good design decisions so far. But because intuitive choices do not offer conclusive explanations or justifications, she has rarely employed intuition as a design mechanism." (p.288)

However, when focusing on experiential qualities during the design process, intuition appears to be indispensable. From a neutral, disengaged cognitive perspective, experiential qualities can hardly be incorporated in an architectural design process. Personal, subjective considerations are essential for architectural intelligence to address experiential qualities.

"Repeatedly making schemes of our design intentions proved not to produce the desired answers. We dismissed this method and opted to start designing from materiality." (p.138)

While materials and materiality evidently constitute a large part of architectural design attention, the first sentence of the quote indicates the students consider a more formal, conceptual approach as dominant, or at least as prior. They usually commence designing by formally shaping their design intentions. Only when this abstract shaping has proceeded to a certain level do materials and material realization come into focus. However, this approach failed as a strategy to address experiential qualities.

After much consideration, the students adopted a different approach: instead of adding materiality to an abstract design proposal, they started designing from materiality. First of all, they listed desired material criteria. These included both quantitative (transparent, cheap, high resistance to longitudinal forces, easily available) and qualitative (pleasant, tactile, light, unobtrusive) properties. These criteria resulted in the selection of nylon and wood as the main construction materials. The choice of materials and the way they were treated



and assembled, then served as a major generative force in the design process. The built installation didn't result from materializing an abstract, immaterial design proposal but was simultaneously designed and built. Focussing on the combination of materiality and design intentions (rather than trying to progress from design intentions to abstract design proposal to material realization) did effectively generate a design process that fitted the assignment. This approach was discovered and adopted by all students sooner or later in the design process. Materiality seemed indispensable as a generative design focus. (Still, although all students recognized materiality consists of both quantitative or qualitative properties, the emphasis on the nature of the materials' properties greatly varied among students.)

On skill

Almost all students were very proficient in graphic and abstract representation and in modeling. (The skill in textual communication varied from deplorable to excellent.) Despite the high level of representational craft however, neither the production of the conventional architectural drawings nor the building of scaled models resulted in preliminary designs or design research. Only in the case of *Abattoir in Situ* were drawings and models effectively employed, but even then only for analysis of the existing context (the former slaughterhouse).

All students desperately searched for means to capture their design intentions and ideas in order to further explore and communicate them. Not one of the tentative architectural design drawings or models directly resulted in a path that lead to the final design.

For several months, all design processes mainly revolved around fleeting conversations, sometimes captured on tape or in writing. Due to the inability to pin ideas, the design processes proceeded without exception wavering and indecisive until the actual building processes started. Once a preliminary construction was erected, the students started drawing again to demarcate and research those aspects they wanted to optimize.

For all designs it can be stated that architectural drawings and models contributed very little to the creative phases, but proved efficient during the predictive phases. They generally failed as communication tools for experiential qualities, and often even acted obfuscating.

The research seems to indicate that architecture students acquire all the skills necessary to capture, research and communicate quantitative properties of their design proposals (and of existing architecture) but remain mostly helpless when faced with qualitative properties.

On intention

The general intent of all the designs is already formulated in the assignment: to create architectural space with a focus on its experiential qualities.

Specifying the general intent in order to formulate a concrete design intention, proved to be extremely difficult for most students. Even in the case of 'Abattoir in Situ', where the general goal of the assignment was already more or less circumscribed and the spatial conditions were set, it took the students several months to clearly define a specific design goal.

This was predominantly due to what they consider to be the nature of an architectural design goal: a set of criteria that constitute a problem. Designing then is the creative and reflective act through which a solution to the problem is invented. The value of the design depends on the level of success in solving the problem and it can be measured by the way the design corresponds with the initial criteria.

When experiential qualities come into play as the dominant objective, the lack of fixed and measurable criteria that the built object needs to meet, seems to destabilize the students' habitual way of working. They struggle to initiate a design process when it can not be tackled by a problem solving strategy. As a response, they keep searching for more or less quantitative criteria that allow them to fall back on familiar patterns. These patterns originate from a persistent tendency to regard architectural design as the solving of a set of problems through the creation of an architectural object. The paradigm of problem-solving as the basis of architectural design practice proved to be deeply embedded. (This paradigm is called "The Problem of the Problem" by Jeremy Till, 2009, p.166-169.)

As a result, all groups but one remained as long as possible in the comfort zone of researching the conditions of the assignments, hoping to discover the pre-existing but still hidden problem.

"Formulating a concrete design motive took some time. ... This may be due to the fact that we never had to devise a design motive ourselves during our studies. Although possible motives were probably inherently present in the assignment, we were not able to detect them. ... We also wanted to fit everything neatly into our theoretical framework." (p.181)

The quote indicates intentions and motives are regarded as external factors that need to be discovered or detected. Intentions and motives reside 'out there', as already existing entities. They are not seen as something that can be conceived: not-yet-existing concepts or potentialities that can be partially derived from personal, subjective factors. Almost all students initially showed

an inhibition -and some also a partial inability- to examine and/or voice introspective features or facets that might contribute to the project's objective and ambition. They were obviously used to a more detached (objective) position vis-à-vis a design assignment.

Only the group 'Het ULEVEL' succeeded in relatively smoothly overcoming the problem solving design strategy. After two months of study, they set in motion an explorative search for an alternative way of defining and tackling a design goal. Instead of trying to find a problem in order to solve it, they started exploring the potentials of the assignment and questioning the nature of architectural design in order to demarcate research areas they could investigate. Their focus shifted from realizing a physical architectural object to the process of designing architecture itself. Still, due to their inadaptness with an explorative design strategy, it took the group several months before the strategy bared a focused design intention.

For the other projects, the intentions regarding experiential qualities remained fragmented and at least partially problem based until the very end. This was especially evident in one of the projects of Abattoir In Situ, where a coherent overarching concept only started to emerge during the tentative building stage -about two weeks before the project's exhibition.

Still, despite all difficulties and often awkward timing, all students acknowledged to some degree that the assignment changed the way they think about a designer's intentions in architecture. They all recognized that considering personal, subjective factors (in addition to more external and objective criteria) when defining intentions, can provide considerable added value since:

- it allows to focus on experiential qualities.
- it extends the basis for making design decisions.
- it allows to exploit intuition as a form of design intelligence.
- it allows personal ethics to enter the design process (and architecture in general).

3.6 GAPS AND NEEDS IN ARCHITECTURAL PRACTICE

This section presents the combined research results of the theoretical and observational track, in order to pinpoint what is missing in architectural practice to address experiential factors during the design process.

In both tracks, features of the design process are researched and classified in three categories: substantive knowledge, process skills, and intention. Although these categories overlap, I will accordingly present the identified gaps and needs in architectural practice in these categories.

Gaps and needs in knowledge

Both tracks show a proper theoretical basis on experiential qualities in architecture is largely lacking. And although the number of studies on phenomenal aspects in architecture has recently been increasing rapidly, the generated knowledge has barely or insufficiently reached practicing architects.

This research points out several reasons for the limited dissemination and implementation of this knowledge.

- The research is still exploratory and fragmented. Resultingly, both design practice and academic education show a reluctance to adopt and implement this not yet paradigmatic knowledge.
- Experiential qualities are generally still poorly validated in architecture discourse and research. They are seldom considered a top priority or essential feature of architecture or of architectural design. Inferior to more rational and objectifiable matters, experiential qualities are commonly perceived as having little relevance to architecture and even less to architectural design practice.
- Architects' sceptical attitude towards design theory and design methodology has created a divide between practice and theory that restrains the dissemination and implementation of theoretical design knowledge.
- Also, architects' tendency towards a positivist design approach (design choices and intentions are seen as right or wrong and can be cognitively assessed) obstructs including experiential qualities as a deliberate and essential feature of the design and the design process.

The research results also allow to identify (at least some of) the specificities of the kind of knowledge that is missing.

- Architectural practice is lacking a sufficiently large body of critical case-studies that can function as a canon of architectural references. As generative theory, this research could describe and analyse experiential qualities of specific architectural cases in order to draw attention to certain properties and to possibilities of the built environment and

of the design process that might otherwise be missed. This implies the case-studies can not suffice with merely describing experiential qualities as accurately as possible, but should also try to determine and communicate how and why they are generated. They could also try to suggest similar or related cases.

- Architects are for the most part only fragmentarily provided with concrete knowledge and methods to record and examine experiential qualities of architecture in their personal design portfolio. They do not have appropriate methods to research them in their own design biography –by precedence.
- Architects usually do not have at their disposal specific knowledge or directions of how to enrich and nurse their design intelligence aimed at experiential qualities. Since it is generally regarded as a fixed talent –some kind of innate capacity– practical know-how to improve it is non-existent. This lack especially shows in academic education.
- Next to the knowledge of quantitative and technical properties of materials and constructions, the understanding of their experiential qualities remains remarkably fragmentary and sketchy. They should be given a higher research priority.

Gaps and needs in skill

The research shows the conventional notation instruments –plan/section, isometric perspective drawing, abstract modelling– do not provide the means to accurately conceive (generative tool) or express (communication tool) the experiential features of an architectural design. They allow to capture, research and communicate quantitative properties of a design proposal (and of the built environment), but largely fail as tools to cope with qualitative properties.

Gaps and needs in intention

Architects rarely explicitly express experiential qualities as part of the design intentions.

This stems from a combination of the poor status and validation of experiential qualities in architecture discourse and research, of architects' (conceptual) perspective on space, of their tendency towards a positivist design approach, and of their (in)ability to reflect on (qualitative) design activities.

Also, and essentially, it results from what is commonly considered to be the nature of architectural design processes: creative problem solving. Designing then is seen as the creative and reflective act through which a solution to a well-defined problem is invented. In this view, intentions and motives are to

be derived from the problem: they need to be discovered or detected from the design brief. It implies architects primarily position themselves objectively vis-à-vis a design assignment. This more or less detached position leaves little room for phenomenal exploration. Both Zumthor and Holl however state they do not accept the design brief as a given, but consider it as part of a field of (phenomenal) inquiry. Designing then becomes a process of discovery that allows the exploration of experiential potentialities. It inevitably requires examining and expressing more subjective, introspective features that might contribute to the project's objective and ambition.

To be able to do so more consistently and confidently, architects would benefit from:

- a revaluation of experiential qualities in architecture discourse and practice.
- a revaluation of intuition, sensibilities and feelings as vital capacities, as essential components of architectural intelligence and the craftsmanship of the designer.
- concrete knowledge and methods to communicate experiential intent.

3.7 CONSIDERATIONS AND PRINCIPLES FOR IMPROVING ARCHITECTURAL DESIGN PROCESSES

Remains the question which considerations and possible principles can provide a more solid basis for generating design proposals and making architectural design decisions concerning experiential qualities.

Firstly, some considerations can be made regarding the broad discipline of architecture. Architectural design forms an inherent –and to most practitioners the central- part of the discipline of architecture. So the culture and discourse of the discipline, as diverse and variable as they are, naturally influence the way architects design.

Since experiential qualities seem to be poorly validated in architecture discourse and research, they are commonly perceived as having little relevance to architectural design practice. In 2.6 Conclusions, I already stated that some of the dominant conceptions regarding the phenomenon of architectural experience must be reconsidered since some of the premises that ground these conceptions form part of outdated scientific viewpoints and ideas. So if experiential qualities are to play a more significant role in architectural design, architecture theorists and researchers should inquire the changing state of knowledge –particularly in psychology and cognitive and neurosciences- and

clarify its relevance to architectural practice. (This research project aims to contribute to this inquiry.) And even though there exists a divide between practice and theory, architects' scepticism towards abstract theory and research gets easily matched by their eagerness to examine the works of colleagues. It is mainly the inquiry of referential projects that drives reflection in design practice and debate among design practitioners. So architectural design processes could benefit from critical case-studies with a focus on the phenomenal dimension of the cases. The potential of the case-studies firstly lies in the possibility of creating a positive loop between comprehending concrete architectural cases and architectural design. Since knowledge on how to conduct these studies is largely lacking, this also requires finding or developing appropriate methods and a suited vocabulary (cf. Chapter 4. User perspective).

Secondly, architects would benefit from concrete knowledge and methods to record and examine experiential qualities of architecture in their personal design portfolio. Since reflecting on personal design history closely relates to studying colleagues' cases, knowledge and methods on how to conduct critical case-studies with a focus on experiential qualities may very likely also apply to self-critically examining precedences.

Thirdly, architects -and architecture students in particular- would benefit from specific knowledge or directions of how to enrich and nurse their design intelligence aimed at experiential qualities. This entails motivating them to do so by pointing out its relevance and possible benefits.

And fourthly, architects would benefit from adequate tools or means to communicate experiential intent and experiential qualities of their designs. This involves developing suitable notation instruments (cf. 4.4.3 Graphic representation).

Remark

This chapter zoomed in on the experiential dimension of space from the perspective of the designer of a spatial environment, and more particular the practicing architect. Since most architectural students are trainees to become practicing architects, and since I included architectural students in the research, most of the research results not only apply to architectural practice, but also to architectural education. However, to include architectural students, I adapted the nature of the usual educational design assignment (3.5.1 Setting up an architectural design studio). In order to simulate architectural practice and avoid too much abstraction of reality, the students had to produce relatively small temporary constructions on a 1:1 scale. The projects were edu-

cationally interesting and produced (some) research results that are relevant for both architecture practice and architectural education. Still, during the trajectory and additionally during the applied empirical research described in the next chapter (4. User perspective), it became apparent there is great need for research that specifically focusses on incorporating experiential qualities in educational design studio's. This more pedagogically oriented research may -as this research does- point to alternative design assignments, but could additionally investigate how to implement experiential qualities of architecture in more traditional educational design studio's.

3.8 ANNEX

As stated in 3.1 Goals and ambition, one of this chapter aims is to expose what is missing in architecture in order to generate possible solutions for practical design activities. I believe I have fairly succeeded in identifying gaps and needs in contemporary architectural practice to address experiential factors during the design process and in formulating some considerations and principles for improving architectural design processes. However, in retrospect these considerations and principles appear as rather circumstantial and somehow feel slightly unsatisfactory to me. I believe I have not yet exhaustively uncovered what role experiential qualities can play during architectural design processes. My faint but persistent dissatisfaction may be due to the fact that the considerations and principles appear to be targeted to architectural design practice in general, and therefore lack specificity to be usable in a distinct design case. After all, from a designer's perspective, what counts is what you (can) do with them.

The question of applicability -of what practical use are these rather general theoretical speculations in concrete architectural design practice?- remains mostly unanswered. This is partly due to the unique nature of architectural design processes. As mentioned in 3.1 Goals and ambition, establishing principles to guide design processes poses risks and should be done with great care. When formulated too strict, they can not serve to advance the process of architectural design in general. When formulated too vaguely, the principles will prove ineffective for a specific design case. It is also due to the underlying complexity of this seemingly straightforward question: trying to answer it inevitably leads to its branching out into more specific questions, each of them opening up extensive areas of research:

- how can the theoretical speculations be advanced into non-restricting applicable knowledge, methods and tools?
- which kind of practices would be interested in this knowledge, methods and tools?
- how, where and when can the knowledge, methods and tools be implemented in a concrete design process?
- what are the effects of the knowledge, methods and tools on the design processes? How do they relate to or interact with the existing knowledge, methods and tools?
- what are the effects of the knowledge, methods and tools on the design results?

During this research, these questions have been insufficiently explored to provide adequate, scientifically solid answers. It seems more research could and should be done in order to produce relevant information that can effectively

contribute to addressing experiential qualities during actual architectural design processes.

On the plus side, this research (incl. chapter 4. User perspective) does provide a more or less solid basis for developing these answers. Though it can not function as a practical manual, the research can act as a guidebook, both for researchers aiming to tackle the questions and for practitioners wanting to advance their design processes.

In order to demonstrate the potential relevance of the research for design practice, I will give an account here of how my colleagues and I reworked the curriculum for the design studios in the first bachelor year in architecture at the faculty of Design Sciences at the Antwerp University. At the same time, it attests to my own development as a teacher in architectural design due to this research.

3.8.1 Design studio I: Initiation in architectural design

In June 2017, my colleagues and I started rethinking the design studio 'Initiation in architectural design'. Since the following studios are focused on architectural themes (habitation, culture, context, construction), this studio offers an exploration in some of the underlying, basic principles of architectural design.

After much discussion and deliberation, the general content of the studio was defined as 'the study of carefully delimiting space in order to generate and optimize the experiential qualities of that space'. One of our main concerns was to steer the students away from too much conceptual abstraction or an excessive focus on quantitative, geometrical space (cf. 1.1 Problem statement) in order to be able to adequately address experiential qualities.

Based on the general content, we formulated three main goals:

- the students must get acquainted with and explore experiential spatial qualities
- the students must become familiar with some basic design strategies and design methods
- the students must start building up a relevant frame of reference

The main goals already address some of the gaps and needs I identified in 3.6 Gaps and needs in architectural practice:

- the poor status and validation of experiential qualities in architecture discourse and research
- most architects' inhibition to explicitly express experiential qualities as

part of the design intentions

- most architects' conceptual perspective on space and their tendency towards a positivist design approach (problem solving)

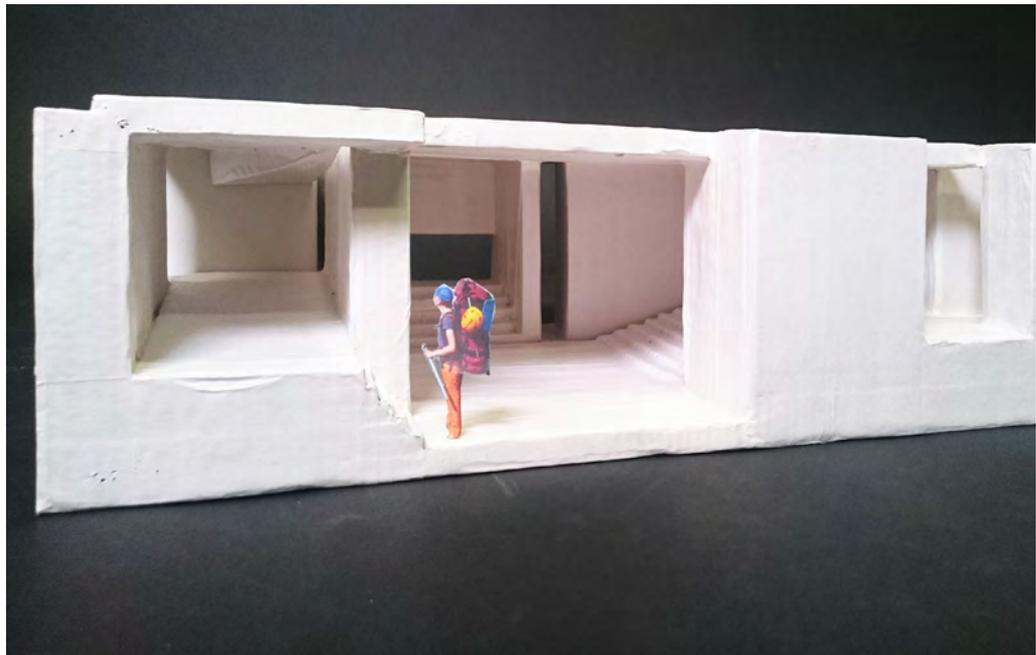
We realized that, in order to tackle this content, we had to devise and develop suitable approaches and methods ourselves. Remarkably, we managed to do so with relative ease. Partly because bits and pieces had already been implemented in the existing curriculum. But certainly also because I had apparently acquired a considerable amount of useful expertise, and some of the research methods that I developed and used throughout my research trajectory provided a few more or less readily applicable techniques.

In response to our main goals, we firstly formulated a set of basic principles for devising the design exercises.

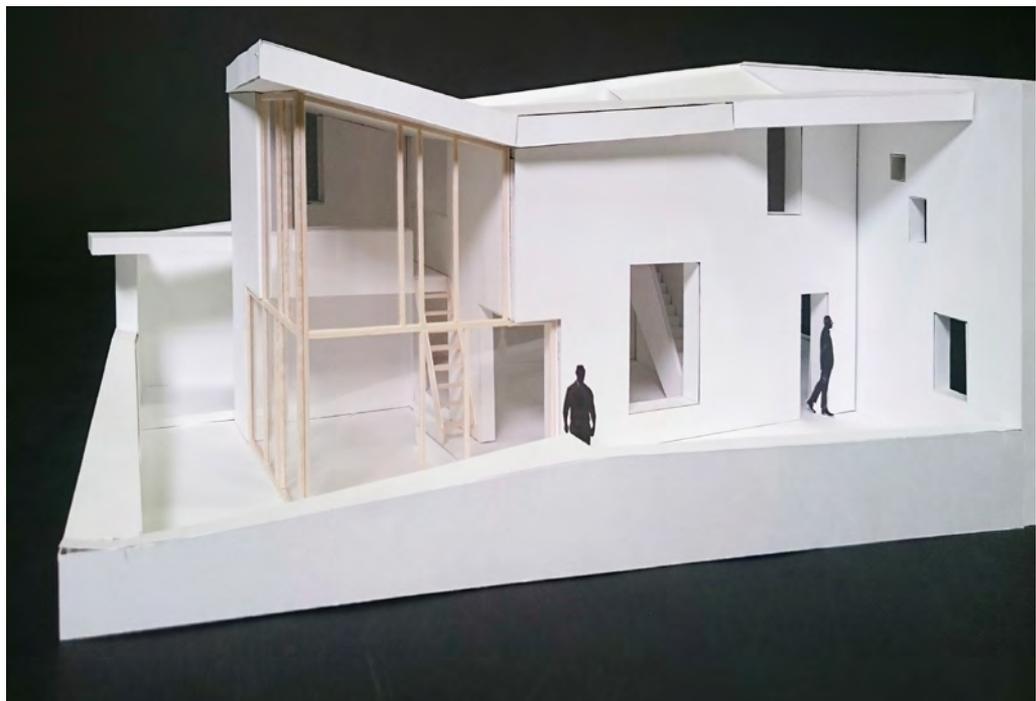
- we build up a frame of reference by visiting built architecture as much as possible. (cf. 3.7 Considerations and principles for improving architectural design processes)
- every design assignment starts from and builds on a real existing referential space. (cf. 3.6 Gaps and needs in architectural practice)
- all assignments are formulated as an explorative inquiry, not as a problem the students have to solve. (cf. 3.5.3 Analysis of design processes, on intention)
- students predominantly use models as a design tool and only use conventional notation instruments (plan/section/elevation) to represent a finished design. (3.4.3 Preliminary conclusions) Human figures are inserted in all models and drawings. (cf. 4.4 Conclusions)
- if used as a design tool, drawings represent narrative rather than concept, eye-level perspectives are preferred over projection drawings. (cf. 4.4 Conclusions)

As a practical frame, we then came up with four exercises. Each exercise is to be carried out by a specific design strategy (making variations, hollowing out, building up, making associations) and fitting design methods. Students not only have to carry out the design exercises, they also have to explicitly reflect on the design processes, strategies, and methods in a personal portfolio.

The first exercise aims to introduce students to 'spatial qualities'. They investigate what spatial qualities are and research which architectural elements (can) contribute to these qualities. They do this by designing a 'city shelter' on the roof of a campus building that can function as a refuge for one person. The shelter must provide a suitable and pleasant space for a table and a bed. The exercise consists of two parts: observation and design. In the observation



Exercise II:
design by
Ilke Kerk-
hofs



Exercise III:
design by
Ilke Kerk-
hofs

part, the students visit and closely observe six relatively modest spaces that are located in the university's city campus. Per two, they measure and photograph one of the spaces and reconstruct it in a model on a 1:20 scale. They make a list of all of the architectural elements (natural factors, organizing principles, manipulated materials and object, see 2.2 Architectural space) and try to describe the experiential qualities of the space (affective and connotative features, see 4.3.2 Data analysis). The design part consists of making variations on combinations of architectural elements in order to create a suitable space for a refuge, while preserving the experiential qualities of the initial space. All the variations (min. eight) are represented in study models. A final design proposal is presented in a furnished model on a 1:20 scale.

The second and third exercise are closely related but differ in the design strategy that is applied: hollowing out and building up. One exercise starts from a solid mass of which spaces are 'carved out', the other from a void to which space-defining elements are added. During both exercises, the students further explore 'spatial qualities' by designing a combination of spaces. To begin with, they reconstruct a canonical architectural space in a 1:33 model, based on a picture of that space, and try to describe the experiential qualities of the space. Next, they add three spaces to the canonical space in order to create a coherent spatial combination, with a special focus on the transition between spaces. There are no programmatic or structural requirements. The students are only given a maximum building volume, a maximum spatial volume, and a hypothetical building site located in/on a rocky cliff in Cap Blanc Nez, France.

The fourth exercise takes place during a workshop week. By association, the students develop an imaginary section for a given plan. Based on the real plan and the imagined section, they create a bas-relief of a building, depicting its spatial lay-out and its relation to an imaginary environment.

Since the exercises have been implemented just once and have only recently been finished, the full impact of the used methods and tools on the students' design processes haven't been extensively researched yet. Still, the first results are certainly promising. Particularly relevant is that students readily start to perceive experiential qualities of architecture as extremely important, if not central, to architectural design practice. Most of them positively acknowledge that architectural design should not predominantly deal with geometry, style or function, but should mainly aim to create environments where we can feel good together. Or, as architect Christian Kerez puts it: "... experience is no longer the result of many other influences but becomes the point of departure and focal point of all thoughts during each design process." (Cecilia, 2015, p.15) The used methods and tools allow to -and even make it counterpro-



Design proposal for a habitation building: poster by Ines Van Dyck

ductive not to- introduce, address and discuss experiential qualities in the design studio. Compared to previous years, students' design intentions have significantly shifted from stylistic antics to more human-centered matters. As a result, most of the design proposals display at least some kind of balance between conceptual and/or formal abstraction and phenomenological qualities (and so, finally, the modernist idiom has almost completely disappeared).

3.8.2 Design studio II: Architecture and habitation

Based on the positive experiences in the studio 'Initiation in architectural design', we decided to do a similar reform of the next design studio 'Architecture and habitation'.

My colleagues and I concluded this studio should be a continuation of the previous studio, with similar aims and an analogous methodology. This implies the students keep exploring experiential spatial qualities, reflect on design strategies and design methods, and continue to build up a relevant frame of reference. Obviously, the focus during the design processes is aimed at the topic of habitation. In order to merge the aims and methodology with the general theme, the topic of habitation is approached from three different but closely related angles.

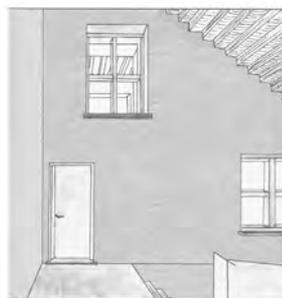
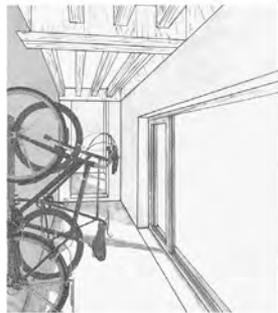
- the relations between public and private space (claiming a particular part of a larger space)
- route (gradations of privacy and spatial qualities)
- appearance (context and character)

The students design a building that houses at least four habitation units on a specific plot in the city center of Antwerp. The plot is flanked on both sides by existing buildings and directly faces two different streets: a narrow pedestrian street on the west side and a relatively wide street with dense traffic on the east side.

To begin with, the students compose a collage for each façade consisting of images of real existing building fragments. The collages have to at least convey design intentions about approach and entrance, the relations between inside and outside on all levels, and the appearance of the building in relation to its immediate context. Simultaneously but more or less independently, the students develop a general idea about an internal spatial scheme. The representation of the scheme has to convey ambitions about the relations between public, collective and private spaces, and about the spatial qualities of the (collective) circulation space and of the habitation units.

In the next phase, the relations between the facades and the internal spatial scheme are examined. In order to bring both aspects together into a coherent

Design proposal for a habitation building: poster by Royd Gool-aerts

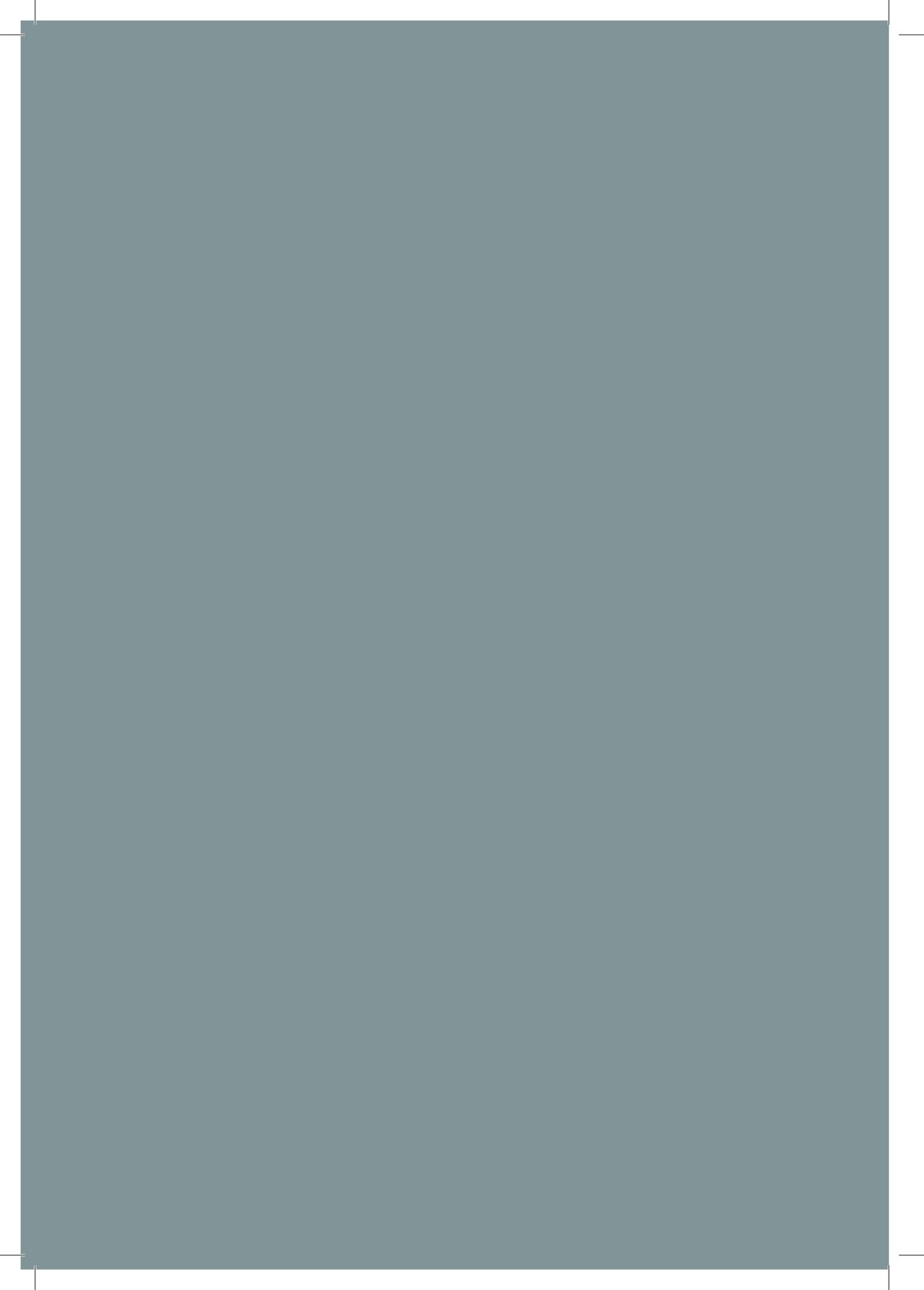


whole, facades and schemes are manipulated by making variations on the initial design proposals. As the design evolves, the students produce scenarios depicting characteristic and/or distinctive scenes of the collective circulation spaces (the route from the street to the furthest habitation unit) in eye-level perspective drawings. The habitation units are designed as casco spaces only. A final design proposition for the whole building is represented by collages of the facades, a scenario (in the format of a poster) depicting the route through the building, and a scale model.

At the time of writing, the design exercise is still ongoing. Nevertheless, the preliminary results show most students do succeed in integrating experiential qualities in their design proposals. This is quite remarkable since the design exercise requires managing an already complex set of architectural factors: an urban setting, a rather elaborate programme for a first bachelor year, constructive requirements, and newly practiced representation techniques. Even better, the more talented students seem to be able to make more nuanced and better substantiated design decisions. They only seldom apply architectural elements for their quantitative properties only, but seem to almost evidently place more importance on what (a combination of) these elements provoke. Consequently, both in the search for possibilities to generate designs and in trying to predict how a specific design proposal will work (cf. 3.3 The architectural design process), experiential qualities become at least an equally important factor next to more conceptual and physical ones.

Promisingly, both studios seems to support the speculation made in 4.4 Conclusions that being sensitive to experiential qualities in architecture is a capacity, a skill we can acquire, practice, and develop. They also demonstrate this research at least holds the potential to act as a framework for developing this capacity. Maybe even more important, the studios underscore that experiential qualities can indeed play a valuable role during architectural design processes. Among my colleagues and I remains little discussion that addressing experiential qualities -and in this case, developing a sensitivity to them- considerably enhances the students' design processes, and in most cases results in more exciting, better architectural designs.

4. user perspective



In this chapter, the phenomenon of 'spatial experience' is researched from the perspective of the experiencing subject. Since an experience in general can be defined as a conscious registration of a subjective encounter with reality (see 2.1 Spatial experience), the experiencing subject is where the phenomenon manifests itself. When an experience basically means the awareness of 'what it is like, for me, now', the experiencing subject is evidently the producer and container of the experience itself.

This chapter reports on applied empirical research that records, articulates and analyses a variety of actual, subjective architectural experiences. It builds on a specifically designed course unit for master students in architecture that aims to introduce the notion of experiential qualities in architectural education and to acquaint students with a phenomenological perspective on architecture. The course unit focusses on displaying a broad range of how people experience architectural space, and on giving attention to those aspects that are usually taken for granted or stay out of conscious awareness. It also seeks for commonalities and essential features in the variety of the architectural experiences.

4.1 GOALS AND AMBITION

Firstly, this part of the research contributes to its overall goal -to improve our understanding of the nature of experiential qualities of architecture- by exposing and analysing the complex and often ambivalent ways in which people relate to their built environment. It aims to provide more insight in the components and mechanisms that are at work in spatial experience as it occurs, and make it -if not transparent- at least articulated.

Secondly, it intends to expand the scope of attention in architectural assessment, both in educational and professional discourse on architecture. At a theoretical level, it reveals and tentatively clarifies qualities of architecture that are largely ignored in the usual assessments of built architecture, but that manifestly show in how we actually experience it.

At a more pragmatic level, it researches if and how these subjective qualities can be graphically represented. It searches for means and methods to incorporate experiential qualities in architectural drawings.

Together, these aims contribute to bridging the gap that exists between the prevailing approach of architectural professionals when assessing the built environment and the actual experiences of the users-perceivers.

Additionally, they address some of the gaps and needs in architectural design practice, as formulated at the end of the previous chapter (3.7 Considerations and principles for improving architectural design processes). They offer a perspective on developing appropriate methods and a suited vocabulary for conducting critical case-study's focusing on experiential qualities. Also, the development of suitable graphic means to communicate experiential qualities of architectural space is initiated.

4.2 METHODOLOGY

This chapter's methodology comprises two stages.

The first stage consists of an explorative research trajectory with a focus on collecting and analysing first-person descriptions of architectural experiences. Since the architectural profession lacks traditions and methods to record subjective architectural experiences, the research initially focused on developing a suitable methodology. This is done empirically by tentatively collecting testimonies of actual experiences using a variety of methods, respondents and

cases (4.3.1 Data collecting). The attempts are then evaluated on their merits and disadvantages.

The relevant testimonies are transcribed and extensively analysed based on Moustakas' method for phenomenological data analysis (Moustakas, 1994). The analysis aims to deduce the structural essences (components and mechanisms) of architectural experiences.

The second stage consists of case-study research of four crematoria in Flanders. Similar to the first stage, it focuses on collecting and analysing first-person descriptions of architectural experiences. Its data collecting methodology however is more defined and limited (4.4.1 Data collecting), based on the findings of the explorative research trajectory. All testimonies are fully transcribed.

A shortened version of Moustakas' data analysis method -drafted from a critical evaluation of the first stage- serves to evaluate, enhance or consolidate the findings from the first stage.

Additionally, the case-study research explores if and how the experiential qualities of the crematoria can be graphically represented in or by architectural drawings.

To conclude, a synthesis of this part of the research and its main outcomes are formulated.

4.3 EXPLORATIVE RESEARCH

4.3.1 Data collecting

In order to establish a relatively extensive baseline of first-person descriptions of spatial experiences in various built environments, an assignment for master students architecture was designed. It was -mildly ironic- entitled “Understanding Architecture” and carried out by twelve students over the course of one semester. The assignment confronted students with the duality between conceptual analysis and phenomenological observation in architecture.

The first concern was to develop an appropriate methodology for collecting data about architectural experiences. To allow for explorative methodological experimentation, the first-person descriptions were collected by different methods, from a variety of respondents, and in diverse cases.

Cases

Every student was asked to select at least two contemporary buildings in Flanders that meet the following criteria:

- It has to be publicly accessible (pragmatic concern)
- You suspect it to be a strong case for this research (to collect a substantial amount of relevant data)
- You have never visited the building (to heighten the impact factor)
- Its architect has to be willing to cooperate in this research (for educational purposes)

The selection generated nineteen buildings in total. Out of this pool, the following buildings were selected as case-study's:

- Kazerne Dossin, AWG Architecten
- Stadscampus Hasselt, noAarchitecten
- C-Mine, 51N4E
- Brouwerij Lamot, 51N4E
- Buda Arts Center, 51N4E
- Felixarchief, Robbrecht en Daem
- Sporthal park Spoor Noord, Verdickt&Verdickt

The selection shows a variety in type, function, size and location of the different buildings. All selected buildings have been reviewed in architectural publications, and architectural drawings (plans, sections, elevations) were more or less readily available. Moreover, its architects were enthusiastic about the research and committed to assess the research results.

Respondents

The research also questioned how much and what kind of data could be found from different respondents. It wanted to examine what is present perceptually for different types of users of architecture: which aspects get noticed by which kind of users. Consequently, testimonies were collected from diverse respondents. Three categories were defined:

- visitors (people who are not professionally involved with architecture and aren't familiar with the building)
- users (people who use the building regularly)
- researchers (students architecture)

For each selected building, the students collected two or three testimonies from each category of respondents. This implies that the amount of descriptions per building is relatively low (between 6 and 9), but the research doesn't aim to evaluate buildings. The amount of descriptions per category of respondents (15) amply suffices to identify differences between the categories. And the overall amount of descriptions (45) forms a substantial baseline to exploratively research actual subjective experiences.

Since the students formed a category of respondents, this category was inevitably familiar with the purpose of the research. To minimize divergence in inside information and its possible impact on respondents' focus during the visits, all participants were briefed in advance about the purpose of the research.

Data collection methods

Because of the lack of an already existing fitting data collection method, different tools and techniques to record or capture testimonies of live experiences were suggested by myself and the students. All suggested methods were discussed and expeditiously tested for relevance, strength and feasibility in the first three weeks of the assignment.

Three methods came out as promising and feasible. Each method was then implemented for each category of respondents in order to establish some conformity in data within each category (to facilitate analysis).

The students' own experiences were documented by voice-recording a live narrative of their personal experience while visiting the building. The voice-recordings were complemented with pictures and sketches of those places or features that left a remarkable impression, made during or immediately after the first visit. This method is based on A. Rauh's *Ästhetische Feldforschungen* (Rauh, 2012).

The users were asked to give two students/researchers a guided tour around

the building, showing at least two of their most and least favourite places. The users were fitted with a GoPro camera to capture both the narrative and the visual focus of the user during the tour.

The visitors visited the building by themselves and were asked to take pictures of those places or features that left a remarkable impression. They were interviewed by the students immediately after their visit, based on the pictures they had taken. The interviews were documented by voice-recording.

All vocal recordings were transcribed in full text, complemented with illustrations.

After scanning the students' research documents for completeness and methodological accuracy, the case of Brewery Lamot was not selected for further reflective analysis (by myself) since it lacked testimonies of users.

The remaining cases provide forty-five first-person descriptions of architectural experiences.

	ar students	users	visitors	total
kazerne Dossin	3	2	2	7
stadscampus Hasselt	3	3	2	8
C-mine	2	2	3	7
Buda Arts Center	2	2	2	6
Felixpakhuis	2	3	3	8
sporthal Spoor Noord	3	3	3	9
				45

Remark

When developing the assignment, several options on how to collect the data were considered. They can basically be categorized as field studies (more or less natural situations) on the one hand and laboratory experiments (more or less controlled conditions) on the other. The latter can allow repetitive trials and targeted experiments, providing more converging or consistent data. For example, it was considered to select an atelier space as a laboratory case. All students could then visit the space multiple times under similar circumstances. Also, by changing particular properties -lowering the ceiling height, altering the light conditions, painting it in different colours, varying the walls' texture, etc.- the relation between those architectural elements and the experiential qualities of the space could be researched. Although feasible and scholarly valid, the laboratory option was quickly and happily rejected. This

decision was primarily based on my dissatisfaction with the results of similar research experiments (cf. Franz, 2005; Petermans, 2012) and substantiated by findings from the theoretical track. Indeed, for a spatial experience to take place, a person at least has to be affected by that space. A laboratory situation would very likely not provide the appropriate environment to make that happen –almost certainly not on several occasions. Also, a laboratory experiment in which certain factors are varied in order to test their impact, presupposes a consistent stimulus-response model, which the theoretical research challenges (see 2.5 Summing up). Moreover, it isolates architecture as autonomous and static physical space, which contradicts how architectural space is characterized in this research (see 2.2 Architectural space and 2.6 Conclusions). All the data collection methods include verbal self-reports. The validity of these methods accordingly relies on people being able to verbally express what is being experienced, and being honest about it. Initial tests showed a lack of motive for distorting the introspective assessment. And the existing alternatives for verbal expression – pictorial measurement instruments such as PAD and PrEmo- didn't provide a credible, let alone superior, substitute (cf. Poels & Dewitte, 2006; Petermans, 2009).

4.3.2 Data analysis

A content analysis was then conducted on the forty-five first-person descriptions of architectural experiences collected in the assignment. In order to provide more insight in the components and mechanisms that are at work in an architectural experience, the analysis aims to deduce its structural essences.

The method applied for analysis is based on Moustakas' method for phenomenological data analysis (Moustakas, 1994). The method provides step by step procedures for organizing and analysing data into a coherent portrayal of the experience investigated. It has been successfully applied to similar architectural research, focusing on the everyday experience of architecture and the urban surroundings (Bader, 2015). It comprises the following phases:

A. Making a thematic content analysis, arising from the text itself, that focusses on identifying and describing relevant themes within each testimony. Expressions that are related to the architectural experience are listed and tentatively grouped. This analysis leads to clusters of core themes for each testimony.

B. From this textual analysis, composite descriptions are developed of the essences of the experience, representing the different categories of respondents, and the group as a whole.

C. Searching for themes and concepts from architectural theory that relate to the composite descriptions, in order to reflect on the findings from the

textual analyses.

D. Formulating the main conclusions of the analysis.

As part of the assignment, the students carried out phases A and B of the analysis for educational purposes. For this research, all testimonies are fully analysed anew by myself, starting from the transcripts.

A. Thematic content analysis

Listing expressions

Listing expressions from all transcripts serves to distill relevant expressions from the bulk of data.

Listing single words from the full transcripts of each testimony quickly proved disadvantageous. Since identical words can carry a different message relative to their context, their meaning can change or get lost when isolating them. Moreover, it makes it impossible to discern dynamics and nuances that are an intrinsic part of the message and sometimes even a key factor for establishing content.

Consequently, expressions are demarcated by their overall content. Their size can vary from a single compact phrase to a cluster of sentences. For example, when someone mentions that a space has a certain character and tries to describe what elements contribute to this character, the entirety of the message is identified as one expression. When that person then continues to mention features of the same space but -according to him or her- unrelated to this particular character, they are regarded as part of a different expression.

Relevant expressions are listed as they appear chronologically in the texts. Expressions that are extremely vague or incomprehensible are not listed (e.g. "The second floor has something specific.")

The amount of listed expressions per person varies between four and eighteen. This variety in quantity may be attributed primarily to different levels of personal sensitivity, or 'emotional granularity' (a term introduced in psychology by Lisa F. Barrett, 2006). Individuals who are low in emotional granularity notice less specificities and report their experiences in global terms. They use general labels or even commonplaces to represent only the most general observations (extrospective and introspective). Individuals higher in granularity discern more distinctions and report their experiences in more precise, nuanced terms. The reports also exhibit a high dependency on language skills,

confidence, personal background and frame of reference.

low granularity: *“I exit the elevator on the sixth floor. I find it a wonderful space, a wow-feeling. I see small exhibition stands. On the opposite side a patio, I assume for smoking. A lot of light, and very spacious.”* (visitor)

high granularity: *“I enter an oasis of light. The view on the patio creates a pleasant and open mood that contrasts with the tight, uncomfortable elevator. It reminds me of an attic with zenital light coming through the Velux windows. No view outside ... The interesting shape of the roofconstruction creates different places: small and intimate, and high and open. The use of warm and natural materials, like parquet, white brickwork, wooden ceiling, gives me a calm feeling, a feeling of sanctity.”* (student)

low granularity: *“The foyer is the nicest place because it is big and often empty, that makes it pleasant to me.”* (user)

high granularity: *“I enter the foyer, the floor slightly slopes up. There are not many people, it echos a little bit. All the corridors connect to this space. I look up and see a octagonal ceiling. Lots of light, it’s a bright space. I notice bars and black railings that refer to the former prison. I notice rooms with different colours. They are meeting-rooms. I start walking again and quickly lose my sense of orientation.”* (student)

Grouping of expressions

Grouping individual expressions serves to organize the relatively large quantity of disorganized data. By clustering expressions into categories, they can be labeled according to the properties of the category.

When interpretatively reviewing the lists of expressions for themes or patterns to construct basic categories, it stood out that every single respondent describes both features of architectural space (physical and non-physical) and more introspective features. Interestingly, both objective and more subjective attributes are used the same way: they seem to be equally conceived.

As a result, trying to classify expressions in objective and subjective categories proved to be troublesome, since the majority of the expressions articulates both, though in varying proportions. This observation confirms the statement made in ‘2.4 Affective response’ that objective and subjective responses do not belong to strictly isolated categories but should be seen as gradients of an experience.

To take this gradient into account, the expressions were tentatively grouped into three categories, derived from linguistics: denotative, connotative and

KAZERNE DOSSIN awg architecten

denotative	connotative	affective
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Karolien Van Put (st.)

1			The building is impressive when you arrive. It is a big, empty canvas and it makes you wonder what is going to happen inside.
2		... serene, soothing and static. It exudes this strength by its modest, monumental and monolithic volume.	
3		Upon entering, the lightness and purity of the entrance stand out. The white luminous ceiling and the white floor fit the outside colour scheme , though the hues appear cooler here.	
4	The heavy steel columns mark a visual barrier after which the space switches to another atmosphere.	... very clearly demarcated from the central space and forms a harsh barrier because of the differences in colour, materiality and light.	
5		You are not guided by the building and this becomes clear because there are instruction signs everywhere on the walls. The building should present itself as an empty canvas ... it does not meet that expectation ...	
6		Because the stairs are placed symmetrically and are so clearly present , it is easy to understand the structure and organisation of the building. It provides a good oversight and you understand what is expected of you.	
7			This however makes the building very predictable. It doesn't make you curious and it is not inviting. The building is incapable of surprising you.
8		But the materiality is very lively , there is a lot to process ...	

affective. These terms categorize meaning by describing the relationship between the signifier and its signified (Barthes, 1977). The first two identify expressions that convey more or less generalized concepts. They are complemented with the term 'affective' that identifies those expressions that convey a more personalized meaning connected to individual emotions or particular experiences (the signified is unique and personal). Affective is usually regarded as a subcategory of connotative, but for the purposes of this research, it proved more useful to implement it as a fully fledged category.

In semiotics, denotation of a word is its primary definition or literal meaning. It is what a word refers to explicitly. The term will be used here to label those expressions that refer exclusively or primarily to elements of the built environment. As such, denotative expressions can consist of -combinations of- anything that belongs to architectural space as defined in chapter 2 (2.2 Architectural space):

- natural factors or climate: light, humidity, temperature, air quality, acoustics
- manipulated materials and objects: used materials with all their qualities and shapes, combinations, connections, and functions
- organizing principles: dimensions and shapes of spaces, function, ordering, and circulation

Strictly speaking, these elements do not belong to the actual spatial experience (Malfroy, 2010, p.5-6). So, when used only to voice observations, what is picked up by the senses, they are left out of account. However, when they are used as possible inducements for experiences (as 'generators'), they are listed.

Connotation is the emotional and imaginative association surrounding a word. Connotative expressions carry additional meaning: poetic, formal, humorous, metaphorical, rhetorical, cultural, intentional, etc. This broad category houses those expressions that refer to qualities of the built environment, those expressions that convey more or less how the environment is being perceived here and now.

Affective expressions mainly describe a person's emotional state. They are predominantly influenced by or resulting from feelings or emotions. In this case (researching architectural experiences), affective expressions originate more or less from aspects of the built environment, but do not refer to them directly. Although the messenger may consider affective expressions as descriptions of the environment, they focus almost exclusively on the experiencing subject.

These categories appeared useful to group the large majority of the expres-

sions. Although most of them contain single words and phrases that belong to a mix of categories, their overall content can be labeled as distinctly denotative, connotative or affective. Occasionally however, the mix seems to be in equilibrium, and the expressions keep balancing between two categories (connotative and affective in particular). In those cases, explicit classification feels arbitrary and dependent on personal interpretative valuation. Therefore, a second and more refined layer is implemented. Within each expression, (groups of) words that clearly belong to a certain category are marked accordingly. This way, nuances are highlighted within a single expression.

B. Composite descriptions

Composite descriptions integrate a number of individual descriptions in a joint description representing a group. By identifying and expressing commonalities in individual descriptions –literally or by thematic abstraction-, core themes and essences of architectural experiences can be exposed. As such, a composite picture of the phenomenon emerges.

For this research, the analysis through composite descriptions is conducted on two levels. Firstly, composite descriptions are created for each category of respondents. Since these categories only exist of fifteen persons, this level permits to stay close to the individual testimonies when formulating commonalities. This part of the analysis mainly aims to identify differences between categories, in order to focus more accurately in the following case-study research. Secondly, a composite description representing the group as a whole is constructed. Making further abstraction of themes and patterns allows to deduce the structural essences of the phenomenon of spatial experience as experienced by the group.

Since it was not the aim to evaluate the buildings on their respective experiential quality, composite descriptions of the architectural experience for each building were not composed.

Per category of respondents

The testimonies of the students and the visitors show considerable similarities. Notwithstanding some exceptions, both students and visitors predominantly report on connotative features regarding ‘action potentials’ and ‘mood/feel’. Although the function of the building is seldom mentioned, almost all describe what a space has to offer in terms of action: whether or not it is inviting, indicative or directive to act or behave in a certain way (enter, sit, walk, talk, hide, stay, etc.). Also, nearly all at least attempt to describe how a space feels: if it is perceived as warm or cool, open or closed, sober or exuberant,

oppressing or spacious, coherent or chaotic, etc. The differences between students and visitors are mainly situated in denotative expressions. Where the students clearly, and understandably, focus on inherently architectural features, the visitors display a broader and more fragmented observation. They do not distinguish between specifically architectural features and elements such as additional objects, decoration and furnishing. To them, architecture forms a non high-ranking part of the larger perceptual context. Students only mention these elements when they find them particularly illustrative for the architectural context, or just irritating. In both categories of respondents, affective expressions pop up frequently but seemingly irregularly.

Next to the students and the visitors, the category of the users manifestly stands apart. Firstly, the number of expressions in the testimonies of all the users except one is strikingly low. Secondly, they speak in extremely general terms about the architectural context, except when describing features that directly relate to their objective and functioning as users. It indicates the users consider the built surroundings as an exclusively functional tool or a mere background to their daily actions and tasks. As the students testified, it proved difficult to record any expression related to an architectural experience that is not directly tied to usefulness.

Group

General observations

The research shows that respondents move quickly from space to space. Most of the built environment is perceived as not very remarkable, neutral, and only gets 'scanned' instead of savoured and examined (even in this case, where buildings are carefully selected). Overall, very little gets noticed and/or most aspects of the built environment remain unmentioned. In every single case, several visited spaces do not get mentioned at all. As a result, all testimonies are relatively short. Not one single space is described by more than fifteen sentences. The habitual perception of the built environment seems to happen in a state of distraction, i.e. with marginal and passing awareness of the architectural object (cf. Bader, 2015). The category of the users is the most striking in this regard (as they are in their habitual environment).

When focal attention is directed towards the built environment, it shifts rapidly between general characteristics and fragments or details (cf. Novak, 2010, p.82 & p.224). Without exception, general characteristics and more detailed features of architectural space get described only partially or vaguely. Even the most interesting and remarkable aspects only seem able to capture at-

tention for a brief moment. The built surroundings quickly fade to the background of conscious attention. They mostly shift back into focus when change occurs or when there is some kind of disturbance (see also next paragraph, 2. Edge).

Even when distinct, describing a spatial experience proves to be an ambiguous task. It confirms the statement made in the introduction (1.1 Problem statement) that an experience is intuitively recognized, but its causes and nature mostly remain vague and intangible. When trying to grasp the nature of the interaction between subject and space, respondents continuously switch between extrospective and introspective observation. They use denotative, connotative and affective terms indiscriminately and in varying combinations, often even in the same sentence.

However, despite the expressions covering a large range between objective and subjective observations, the extremes of the gradient are not mentioned once. None of the respondents describes measurable quantitative characteristics (eg. exact size or temperature, specific material properties), nor purely bodily states (eg. quickened heart-beats, shallow breathing, goose-flesh) or basic emotions (eg. fear, anger, sadness).

Edge

To every single respondent, space is self-evident. It is all but problematic and everybody recognizes spaces as such. All respondents can effortlessly isolate a particular space from 'space' in general. This evident observation implies that people are able to identify edges of spaces: those elements that delimit a particular space, what separates it from other spaces and from its surroundings. It also implies that people can determine what belongs to a space and what doesn't, what or who is in it and what is not.

Edges are clearly an important feature: their presence is frequently recognized by every respondent. They are mainly perceived as (aspects of) material spatial delimitations (walls, floors, ceilings, etc.) or as changes in ambient conditions (light, temperature, etc.). Remarkably, despite the fact that edges often get mentioned as being there, their properties seldom get described. Respondents easily express the perception or the crossing of edges in both denotative and connotative terms, but commonly fail to describe the edge itself. This suggests that edges have an immediate but subconscious impact that precedes conscious acknowledgment of specific (physical and non-physical) elements. Respondents seem to be aware of the occurrence of perceptual changes prior to any reflective awareness of the nature and causes of those changes.

It seems that edges are not primarily perceived as features of the architectural environment, but rather as changes in environmental circumstances. As such, they function as triggers that redirect focal attention to the architectural surroundings.

“It ‘s a bunker.”

The edge between the building and its surroundings is mentioned and described as remarkable because of its harsh and closed character. But not a single constituent (e.g. form, materials, dimensions, openings, colour) is named. *“I exit the corridor and find myself in a rather large concrete space with one brick wall.”*

The transition between the corridor and the other space is mentioned. But again, not a single feature of the edge itself is described. What separates the corridor and the other space -its materiality, shape or size of the opening, if there is a door or a doorstep- is not articulated. It indicates edges are perceived with little conscious acknowledgement of specific elements. They probably do not remain completely unnoticed, but are perceived only at the periphery of conscious attention. (cf. Bader, 2015)

The most fundamental edges perceived are the transitions between inside and outside. However, despite being the most mentioned, descriptions of edges between inside and outside do not essentially differ from descriptions of edges between different interior spaces.

Inside - outside

“Entering is pleasant. I feel like still being outside, the ambient temperature is still cold, and you can hear the cars passing by in the distance, but the space gives me a feeling of shelter and protection.”

The respondent clearly has the impression of being inside, despite noticing several features (the temperature, the sound of cars) that contrast with his habitual experience of entering a building.

“The view outside is very limited, this has a negative effect on the relation between interior and exterior.”

The respondent notices a lack of visual connections between inside and outside. In his opinion, the space would benefit from more visual contact with what is located outside. This implies that he recognizes that there is an inside and an outside to this particular space that are clearly separate. However, the view itself is regarded here as an inherent property of the space: it belongs to it.

Between spaces

“Light, materials and colour demarcate the different spaces on this floor. How-

ever, the many functions that are accommodated here seem to be not demarcated at all."

The student identifies visual and tactile edges that separate adjacent spaces, despite the fact that functions and use seem to counteract with these edges.

"Next to the entrance hall, this is a relatively low space."

The respondent makes a distinction between two spaces mainly by a difference in height. The edge itself -the transition between a higher and a lower ceiling- is not described.

Experiential content

As mentioned, respondents continuously switch between extrospective and introspective observation. It suggests that respondents do not make a clear distinction between themselves and the space: there appears to be no real separation between subject and object (cf. Böhme, 1993). Whether features are ascribed to the space or to the subject often remains unclear. Even when using clearly affective expressions, respondents easily resort to using third-person instead of first-person form. "I feel comfortable here" is generally expressed as "It is a pleasant space". This is probably a result from the fact that experiential content and character are the same: an experience equals what is being experienced equals how it is being experienced.

(This is also the main reason why distinguishing between 'mood of a space' and 'feel of a space' seems artificial. Although linguistically the former is ascribed to the space and the latter to the subject, both convey the same meaning -i.e. the sensed space- but from a different perspective. A separation between these perspectives however reflects an underlying dualistic view. Since dualistic conceptions were rejected in favour of embodied models in chapter 2. Theoretical framework, I will use the terms indiscriminately.)

Respondents use denotative, connotative and affective terms indiscriminately and in varying combinations. Because of its vagueness, respondents try to describe an experience by encompassing it from different angles. In their struggle to communicate its intangible and subjective nature, they don't stick to expressing its essences -which are often unclear, even to the experiencing subject- but provide various kinds of additional information.

For example: when someone experiences a space as homey, to him/her that space is homey. The word homey is used here as an affective expression that captures the overall feel. (Where 'home' stands for 'a poetic image of protected intimacy'. Bachelard, 1994) But this person more or less consciously knows that homey is a vague and personalized term that can have different content to different people (and even to himself). So he/she will very likely try to refine or substantiate this term. To do so, this person has two options. The first

is to elaborate on features of the space that relate to the homey feel: warm light, natural materials, a possibility to repose, etc. The second is to explain how he/she interprets the term 'homey' by using comparisons, metaphors, or associative terms. The first option consists of denotative and connotative expressions, the second of connotative and affective expressions. In his/her testimony of the spatial experience however, this person probably doesn't make the distinction between different categories and blends the expressions. The word homey may even appear seemingly randomly in the testimony.

Still, in the majority of the descriptions, the feel or mood of a place is mentioned first, by a connotative or an affective expression. Only in some cases, especially those where the feel of the space is not experienced as distinct, do respondents mention other -mostly denotative- aspects first.

It suggests that the overall impression of a space doesn't result from mentally assembling several bits and pieces of information collected by the different senses. It rather seems that the feel or mood of a space is perceived immediately: it is grasped as a whole before attention is paid to the different features of the space. And even if that is physiologically incorrect, it does reflect how it is consciously perceived by the respondents.

Moreover, how a space feels acts as some sort of guiding system to what is being perceived (cf. Böhme, 2001, p.172; Novak, 2010, p.223-224). Almost all denotative expressions that describe elements of a space relate directly to the perceived mood: those that establish or contribute to the mood and those that counteract or contrast with it. (Even though the relation itself is seldom described: mostly it remains unclear how or why the relation is established.) Resultingly, when the mood of a space is not perceived as distinct, very little gets noticed. The perceived intensity of the mood of a space seems to direct the amount and level of attention that is being paid.

Essences and core-themes

In order to identify essences and core-themes among the forty-five testimonies of architectural experiences, largely similar and overlapping expressions within each category are grouped. Those features that only get mentioned once are not listed. Within these groups, the coincidental content of the expressions is defined and given a common denominator. They represent the core-themes that are manifested in the testimonies of the entire group of respondents.

affective	feelings	mostly related to (a combination of) pleasantness & arousal pleasant, comfortable, nice, cosy, relaxed-annoying, uncomfortable, awkward, fascinating, remarkable, impressive, interesting, special, monotonous, dull
	recollections	personal previous experiences
connotative	mood/feel	sensed environment open-enclosed, bright-gloomy, exposed-protected, warm-cool, cramped-spacious, static-dynamic, busy- calm, ...
	affordances	potentials for action
	associations	mostly typological
denotative	material	general description of materials (some- times combinations, texture, joints)
		objects
		colours
	non-physical	light (sometimes also acoustics or smell)
		form, shape & relative dimensions of space and objects
		use, functioning
		view & relation with surroundings

The general mood or feel of a space and its possibilities or potential for action (affordances) are the most commonly mentioned features.

Denotative expressions describe the perception of architectural elements. Denotative features belong to the objective constitution of architectural space. By themselves -when only perceived or observed- they are not intrinsic parts of the experience. Combined however, they act as generators for connotative aspects. (Only exceptionally -mainly when it triggers a recollection- does the observation of denotative aspects lead directly to an affective response.) Denotative features are mostly perceived by vision. The other senses primarily come into play when the perceived features are overwhelming, unfamiliar, disturbing, or unexpected.

Connotative expressions describe aspects of overall qualities. They are interpretative characterizations of combined features, and mostly impossible to ascribe to a specific sense. They seem to act as intermediary between different senses (cf. Böhme, 2013). When somebody states that a space feels cool, it usually doesn't mean its air-temperature is low, but that the space is characterized by a combination of features such as smooth surfaces, specific

colours, slick materials, bright lighting, few ornaments, sharp edges, a clearly defined function, etc.

Connotative features also act as intermediary between subject and object. Since they are interpretative, they are dependent on the findings of an individual subject and may differ among different subjects. But they are also conceptual labels that are socio-culturally determined. As such, they are usually generalized by the respondents, who regard them as objective qualities of the space.

Affective expressions describe subjective temporary valuations, mostly relating to a combination of pleasantness and arousal (cf. Mehrabian & Russell, 1974). They convey how a space as a whole feels here and now for a certain individual. This valuation is predominantly based on a combination of connotative features that are weighed against personal preferences and intentions. Affective expressions thus not only convey how a space feels, but also whether or not a person appreciates what he/she feels or senses.

So denotative features act as generators for connotative features. And connotative features serve as criteria for affective features. This finding may suggest the features of the different categories relate causally. However, the research shows that in reality -while experiencing- this is not the case. Experiencing architectural space does not occur chronologically from denotative to connotative to affective. Instead, it is a turbid process that takes place through ever shifting perspectives between these categories. The process can start anywhere, but usually does not begin with the perception of denotative features.

Remark

The architectural students are mainly interested in the relation between denotative and connotative features. They look for spatial qualities to explain or account for (the application of) architectural elements. The visitors focus on the relation between connotative and affective features. They look for spatial qualities to explain an overall feel.

To the users, both denotative, connotative and affective features are indiscriminately regarded only insofar they directly relate to their daily actions and tasks.

C. Related themes and concepts

Searching for related themes and concepts from architectural theory leads to clarification and refinement of the empirical findings so far. It may also provide –if only speculative– explanations for observed phenomena. It allows to further explicate and possibly generalize essences and core-themes that emerge from this particular empirical research.

Additionally, it may contribute to the validation of speculative theoretical concepts and models regarding the nature of affective architectural experience. The empirical findings representing the group as a whole relate prominently to Böhme's ideas on (aesthetic) perception and his concept of 'mindful physical presence in space' ('Leibliche Anwesenheit im Raum') (Böhme, 2001, 2006, 2013). They also show great similarities to Zumthor's writings on what he calls 'the magic of the real' (Zumthor, 2006).

According to Böhme, any aesthetic perceptual event implies two poles that co-exist and interrelate: a subject-pole (myself, I) and an object-pole (a thing). In its core, a perceptual event consists of me perceiving something. The object that is being perceived is usually the most distinct pole, while we tend to suppress our personal subjective state when perceiving. Still, we cannot not perceive ourselves: perception inevitably implies a form of reflexivity.

Zooming in on the object-pole, Böhme distinguishes between its reality (Realität) and its actuality (Wirklichkeit), two aspects that in turn co-exist and interrelate.

Reality refers to an object's quantitative properties: matter (Werkstoffe), dimensions, weight, temperature, wavelength, position. They mark the invariable factual facts, those that can be –but not necessarily are– perceived by the different senses, often in combination with technical means. Reality comprises those aspects that remain the same regardless of which person is observing them.

Actuality refers to the way a thing is being perceived: its 'Ekstasen', character, aura, appearance, staging. They are synesthetic properties that can only be perceived by a reflexive subject, a mindful physical presence. The actuality of a thing is variable and essentially immaterial. It conveys how something is being perceived by a particular person on a particular moment. As such, it also partly belongs to the subject-pole.

In western culture, the subject-pole is generally considered to consist of the five senses and a 'me' that acts as a focal point and an organizing centre. It is a physical body that observes other bodies from a certain perspective and somehow tries to make sense of this observation. According to Böhme, this

specification of a subject doesn't suffice when considering aesthetic perception since it reduces the subject to an exchangeable specimen, and thus objectifies it. This objectified specimen is incapable of subjective aesthetic perception. Still, Böhme doesn't discard this concept of a subject. Instead, he claims we need to additionally include individual factors -our affective engagement, our emphatic involvement and our personal mood- to define a truly subjective subject.

"It is Maundy Thursday 2003. Here I am. Sitting in the sun. A grand arcade - long, tall, beautiful in the sunlight. The square offers me a panorama - the facades of the houses, the church, the monuments. Behind me is the wall of the café. Just the right number of people. A flower market. Sunlight. Eleven o'clock. ... So what moved me? Everything. The things themselves, the people, the air, noises, sound, colours, material presences, textures, forms too - forms I can appreciate. Forms I can try to decipher. Forms I find beautiful. What else moved me? My mood, my feelings, the sense of expectation that filled me while I was sitting there. Which brings that famous Platonic sentence to mind: "beauty is in the eye of the beholder." Meaning: it is all in me. But then I perform an experiment: I take away the square - and my feelings are not the same. ... It's quite logical really. People interact with objects. The real has its own magic." (Zumthor, 2006, p.15-17)

So to Böhme, aesthetic perception is the interrelation between an emphatic subject and an object that is both physical and atmospheric. The nature of this aesthetic perception can be characterized by 'Befindlichkeit' (sensitivity). In German, *befindlichkeit* means both 'to feel a certain way' and 'being there'. It refers simultaneously to an affective state and to a physical presence. This double meaning is illustrative for Böhme's concept of 'Mindful physical presence'. It is exactly in the interplay between both that 'mindful physical presence' originates. In sensing how I feel, I notice the kind of object I perceive. And in noticing the kind of object I perceive, I sense how I feel.

Still, Böhme acknowledges that our habitual perception is not as capricious as our mood. Social expectations and cultural mechanisms play a significant role in stabilizing the truly subjective individual factors and thus our perceptual mode. In western culture this happens to the degree that a distanced perceptual mode, one that takes notice of reality, has become the socially accepted standard. However, according to Böhme, 'Dingwahrnehmung' is not the basic mode of perception but already a specific type. It does not form the constitutive ground for aesthetic perception, that can be acquired by framing, study, or discipline. To Böhme, it is the other way round. Aesthetic perception is the fundamental perceptual mode, from which the perception of reality can be

deduced by specification and abstraction. We sense before we perceive.

“Our first impression of a person. What I learned was: don’t trust it – give the guy a chance. Years passed. I got a bit older. And I have to admit that I’m back to believing in first impressions. It’s a bit like that with architecture, too. I enter a building, see a room, and –in the fraction of a second- have this feeling about it. We perceive atmosphere through our emotional sensibility –a form of perception that works incredibly quickly, ... Something inside us tells us an enormous amount straight away. We are capable of immediate appreciation, of a spontaneous emotional response, of rejecting things in a flash.” (Zumthor, 2006, p.11-13)

The primacy of sensing on perceiving apparently also applies to experiencing architecture, which is a specific –i.e. spatial- kind of aesthetic perception.

“So what is space as the space of mindful physical presence? The key here is atmosphere. ... In fact, the atmosphere is the space of mindful physical presence into which one enters or finds oneself, owing to the type of experience involved. This experience is mindful physical sensation. ... We sense expanse or confines, we sense elation or depression, proximity or distance, we sense openness or entrapment, we sense intimations of motion.” (Böhme, 2013, p.27)

According to Böhme, a spatial experience only originates from a space of mindful physical presence. Meaning, a space from which atmosphere forms an intrinsic part of its object-pole. And atmosphere is accessed by sensation. So the way we experience (mindful physical) space is as a modulation or articulation of characteristics of our sensitivities. Therefore, expressions for sensitivities can also be used to describe characteristics of spaces of mindful physical presence. When I label a sensed space as ‘confining’ or ‘oppressive’, I might as well say ‘I feel confined’ or ‘I feel oppressed’. A mindful physical space may even be described by expressions that do not immediately relate to spatial characteristics: joyful, melancholic, festive, etcetera. To Böhme, the mechanisms by which we experience equal what we experience.

“I’ve been keeping an eye on myself, and I’m going to give you an account now, of what I’ve found out about the way I go about things and what concerns me most when I try to generate a certain atmosphere in one of my buildings. Of course, these answers to the question are highly personal. I have nothing else. They are also highly sensitive and individual. In fact, they are probably the products of sensitivities themselves, personal sensitivities, making me do things in a particular way.” (Zumthor, 2006, p.21)

Böhme proposes five groups of characteristics of our sensitivities (Böhme, 2001, p.87-90) of which three are particularly relevant here since they also represent categories of spatial experience (Böhme, in Havik, 2013, p.29-30). These categories allow to classify experiential architectural characteristics. The attributed, inherently subjective characteristics form a spectrum that makes up the actual experience.

- Intimations of movement ('Bewegungsanmutungen'): they are sensed as suggested movement, but also as massiveness or loads, and as confines or expanse of the space. These impressions are communicated by lines, shapes and volumes that are intuitively associated with movement.
- Synesthetics ('Synästhesien'): those aspects of qualities that are mostly not perceived by a specific sense but identify intermediary qualities -such as intensity, brightness or density- that belong to more than one sensory field at once. Synesthetic qualities of space are mostly produced by complex settings and arrangements of elements.
- Social characteristics ('gesellschaftlichen Charaktere'): they depend on socially or culturally specific conventions. They are produced by those signs and symbols that have the capacity to generate a phenomenal reality to which they refer. Signs and symbols that rely on conventions merely to generate meaning -such as traffic signs- do not belong to this category because they can only be decoded and do not produce a phenomenal effect.

The three groups of characteristics account for what Böhme calls mindful physical space. They show great similarity with the three core-themes I identified as connotative categories: affordances, mood/feel, and associations.

Böhme states these characteristics are caused by factors or features that consist of objective architectonic aspects that can be both material (thing-like) and non-corporeal. He calls these factors the 'generators of atmosphere' ('Erzeugenden von Atmosphäre'). These factors clearly correspond to the denotative core-themes.

To Böhme, architecture -to the extent that it focuses on human sensitivities that are mindfully present in their spaces- will need to focus on the way these factors work as generators of atmosphere rather than on their inherent properties or function. When focusing on the subjective experience of a space, what counts in architecture is not the properties of the objective space but the sensitivities they evoke. For example: used materials evidently exist of matter (Materie, Werkstoffe), but we sense them by their character (Character, Ausstrahlung). Phenomenal qualities of materials come prior to materiality when experiencing architectural space.

Making a complete quantification of all possible generators seems an impos-

Empirical research	Böhme	Zumthor
experiential content	mindful physical space	magic of the real
affective: - feelings - recollections connotative: - mood/feel - affordances - associations	- synesthetic - intimations of movement - social characteristics	- atmosphere - emotional response
generators / denotative	generators	generators
material: - general description of materials - objects - colours non-physical: - light (sometimes also acoustics or smell) - form, shape & relative dimensions of space and object - use, functioning - view & relation with surroundings	material: - staged materiality non-corporeal: - space - sound - light	material: - the body of architecture - material compatibility - surrounding objects non-physical: - sound of space - temperature - between composure and seduction - tension between interior and exterior - levels of intimacy: proximity and distance - the light on things

sible and ineffective task since –as Zumthor states- everything can function as a generator. Still, our empirical research has shown that a limited number of clusters of architectural factors cover the majority of sensed generators. Also Böhme and Zumthor have identified what they consider to be the main categories of generators, without claiming completeness.

To Böhme these categories include:

- staged materiality (Inszenierte Materialität)
- space (Raum)
- sound (Ton)
- light (Licht)

To Zumthor the most important and overarching factor is the coherence of the whole: all factors have to refer to all other factors and removing or significantly altering a single one would destroy the whole.

- the body of architecture: the material presence of things, the bodily mass and the anatomy of a building
- material compatibility: the unique material composition, the combination of different types of materials
- the sound of space: the sound a room makes (shape, surfaces, application of materials)
- temperature: climate conditions of a space
- surrounding objects: things themselves and their placing
- between composure and seduction: the way architecture involves movement (guidance, directing action, orientation, spatial sequences that support the use of the building)
- tension between interior and exterior: thresholds, crossings, transition, enclosure
- levels of intimacy: proximity and distance (size, mass and gravity of things in relation to my own body)
- the light on things: light and shadows, light and dark, surfaces of things

As the basic scheme demonstrates, both Böhme and Zumthor acknowledge –in accordance with our empirical research- that the content of a spatial experience consists of emotional or sensitive responses to a spatial environment. This content originates from objective architectural aspects –the generators- that are sensed, not merely perceived. These aspects can be both material and non physical. And although delimitation and denomination of the categories differ, in their respective totalities they more or less comprise the same principal elements that function as generators.

Mechanisms

Regarding the mechanisms, both Böhme and Zumthor remain indistinct. It has nevertheless been made clear that experiencing architecture is a subjective, sensitive response to aspects of the built environment. And that this sensitive response often comes prior to perceiving objective properties of space. On the subject-side, a spatial experience depends on the characteristics of a person's individual sensitivities, and on his/her intentions (the nature of the relationship). On the object-side, it depends on the amount, intensity and consistency of the generators that trigger the sensitivities, and on the way the spatial environment affords intentions to be carried out.

Remains the question how the mechanisms work. Or, how is it altogether possible that a vigorous link exists between space and sensitivity?

One should keep in mind that the coming about of a spatial experience is not a given. It does not exist in any reality outside of momentary experience, it is not an ontological entity that is 'out there' to be noticed or sensed. It is created every single time and only exists if and when it occurs: its occurrence equals its existence. Resultingly, trying to expose and explain the mechanisms of its occurrence can only be done conditionally and in retrospect: we can try to identify what conditions need to be present for an experience to occur, but we can not claim that the presence of these conditions effectively result in the occurrence of an experience.

Böhme does not provide a decisive answer to the question of how the mechanisms work, but hints that the origin of our capability to sense an environment lies in our personal early childhood evolution (früh kindlichen Entwicklung). As a baby and as a toddler we interact with our environment through our bodies. Initially, we do not relate with the outside world through some form of objectifying distanced perception but we experience it with -or better in our own body. We do not perceive resistance, humidity, temperature but we experience softness and hardness, dampness and dryness, cold and warmth as they manifest themselves in our body. Our body is at the same time the medium and the sensory organ of our experiencing. Experiencing an environment is thus also experiencing oneself. Böhme claims these experiences are stored in our bodies as memories. The profound impact of experiencing mindful physical space arouses these memories. It is a kind of regression to an initial, fundamental mode of interacting with our environment, through our bodily memory.

A firmer - but still speculative- answer is propounded by Vittorio Gallese

(2005). Although he mainly researches intersubjective experience and social cognition, his ideas are transferable to spatial experience (Mallgrave, 2013).

Gallese, a neurophysiologist and philosopher, puts forward the notion of ‘embodied simulation’ as a fundamental mechanism for phenomenal experience. Embodied simulation is a direct, pre-reflexive form of simulation that functions before and below a detached, sensory based imitation of observed (social) stimuli. It is not the result of a willed conscious cognitive effort but rather a basic functional mechanism of our brain, resulting from automatic neural processes. Gallese claims that the discovery of mirroring mechanisms in the human brain shows that the very same neural substrates are activated when performing and when observing an action. These mechanisms are also active when subjectively experiencing and when watching someone experience sensations of emotions. Watching someone kicking a foot-ball activates the same neurons of our brain that would fire if I was kicking a ball, though not in all of its components. Watching someone taking a bite out of a lemon activates the same neural circuits as when I would bite a lemon, though not with the same intensity. Perceiving an action or observing a third-person sensation is equivalent to internally simulating it. The other’s actions and emotions are understood by means of an embodied simulation producing a shared body state. Consequently, empathy with other persons depends upon the involvement of body-related first-person tactile experiential knowledge. It implies a dual nature of our own body as the sensing subject and the sensed object of our perceptions. This dual nature is enabled by the existence of mirror neurons in our brain.

The embodied simulation mechanisms also proved active when anticipating actions, both those by others and those by ourselves. A fundamental social ability among humans is the capacity to accurately detect and understand the intentional conduct of others, to anticipate their upcoming actions, and to appropriately adjust one’s own behavior. Accordingly, when we are going to execute an action ourselves, we have the ability to more or less predict its results and consequences. Traditional views claim that these capacities stem from our cognitive ability to causal reasoning. Gallese however posits these capacities are neurally instantiated: by neurally simulating upcoming actions, we bodily anticipate their execution and result. This does not mean the two mechanisms are mutually exclusive. Both can be active in action anticipation (and also in action and emotion understanding), but neuroscientific research has shown that cognitive processes are not our primary understanding mechanisms.

The concept of embodied simulation shows some resemblance to what Böhme

sees as the mechanism behind mindful physical presence. Böhme however situates the height of our ability to bodily interact with the environment mainly in our early childhood. To him, it 's an ability that gradually fades while we grow up and adopt a more objectifying perspective. To Gallese, embodied simulation is an ability that doesn't necessarily get veiled by cognitive capacities. As a rudimentary innate capacity, it is developed, enriched and modulated by experiential –especially visuomotor- learning.

To Mallgrave (2013), embodied simulation as defined by Gallese provides crucial information for understanding how we experience architecture. Two aspects are particularly relevant in this regard.

Firstly, our capacity of action anticipation by simulation mechanisms implies we don't effectively have to perform an action to sense its consequences. On the one hand, it explains why and how we experience –rather than conceive- 'affordances'. By embodied simulation we can immediately sense if reposing on the stairs would be comfortable and if sitting on the window sill would be enjoyable. We bodily sense and evaluate possible actions, and project our evaluation onto the environment as qualities. We say the stairs encourage movement and the window sill appears inviting. On the other hand, it explains why we don't have to touch surfaces to sense how they feel. Action anticipation allows us to immediately sense what it would feel like to brush my hand against a wall (based on previous experiences). We sense its texture, hardness, warmth as we neurally simulate the act of brushing the wall. We have the precognitive capacity to mirror the tactile values of objects in our environments. This capacity has also been identified in art and media sciences as 'visual tactility' or 'haptic visuality': a non-representational sensual relationship between subject and object, induced by visual perception (cf. Marks, 2000; Barker, 2009).

Secondly, our capacity to empathize with other people by intersubjective embodied simulation also applies when we observe inanimate objects, though not in every case and not with the same intensity. Mirror neurons have proven active when perceiving objects as performing an action. When we watch an object fall to the ground, our body automatically responds to those areas being impacted if I were falling to the ground. Similarly, when we observe a slender column bear a huge load, our body simulates the action of supporting a heavy weight. When experiencing architecture, we simulate perceived actions of objects with our bodies: in a certain sense, we empathize with them physiologically and emotionally.

So to Mallgrave, our first and most basic relation with architectural space is characterized by the activation of embodied neural mechanisms that simulate aspects of the built environment, in particular action potentials (affordability) in relation to use or pleasure (emotional valence). In other words: through the

activation of mirror neurons we precognitively mimick those aspects of our built environment that we are sensitive to. When we consciously register these introvert processes, we evaluate them and project the findings back onto the environment as its inherent qualities.

D. Synthesis

In order to provide more insight in the components and mechanisms that are at work in an architectural experience, forty-five first-person descriptions of architectural experiences were collected, transcribed and analysed. To allow for explorative methodological experimentation, the testimonies were collected by different methods, from a variety of respondents, and in diverse cases. The method applied for analysis is based on Moustakas' method for phenomenological data analysis (Moustakas, 1994). It provides step by step procedures for organizing and analysing data into a coherent portrayal of the experiences investigated.

The analysis shows relatively little gets noticed and/or most aspects of the built environment remain unmentioned. The habitual perception of the built environment seems to happen in a state of distraction, i.e. with marginal and passing awareness of the architectural object. From a different perspective, one could state that architecture seems to have a rather low impact factor: its stimuli act weakly both on intensity, duration and persistence, and possibly also on value (cf. 2.2 Architectural space).

When focal attention is directed towards the built environment (mostly triggered by the perception of changes in environmental circumstances), it shifts rapidly between general characteristics and fragments or details.

Respondents also continuously switch between extrospective and introspective observation. They are often used indiscriminately. It suggests that respondents do not make a clear distinction between themselves and the space. In lieu with embodied models (2.3 Perceiving subject), there appears to be no real separation between subject and object.

The majority of the expressions articulates both subjective and more objective attributes. This observation confirms the statement made in the previous chapter (2.4 Affective response) that subjective and objective responses do not belong to strictly isolated categories but should be seen as gradients of an experience. To take this gradient into account, the expressions were grouped into three categories: denotative, connotative and affective.

Largely similar and overlapping expressions within each category are grouped. Within these groups, the coincidental content of the expressions is defined and given a common denominator. They represent the core-themes that are manifested in the testimonies of the entire group of respondents.

affective	feelings	mostly related to (a combination of) pleasantness & arousal pleasant, comfortable, nice, cosy, relaxed-annoying, uncomfortable, awkward, fascinating, remarkable, impressive, interesting, special, monotonous, dull
	recollections	personal previous experiences
connotative	mood/feel	sensed environment open-enclosed, bright-gloomy, exposed-protected, warm-cool, cramped-spacious, static-dynamic, busy-calm, ...
	affordances	potentials for action
	associations	mostly typological
denotative	material	general description of materials (sometimes combinations, texture, joints)
		objects
		colours
	non-physical	light (sometimes also acoustics or smell)
		form, shape & relative dimensions of space and objects
		use, functioning
		view & relation with surroundings

The general mood or feel of a space and its possibilities or potential for action (affordances) are the most commonly and often firstly mentioned features. They seem to be sensed immediately and grasped as a whole before attention is paid to the different features of the space. As such, they act as some sort of guiding system to what is being perceived.

Denotative expressions describe the perception of more or less quantitative properties of architectural elements. They convey predominantly objective observations: what is picked up by the (individual) senses.

Connotative expressions describe aspects of overall qualities. They are interpretative characterizations of combined features and act as intermediary between the different senses, and between subject and object. They refer to what Böhme (2001, 2006, 2013) calls the ‘actuality of the object-pole of an aesthetic perceptual event’: the way a thing or a space is perceived by a reflex-

ive, empathic subject -‘a mindful physical presence’.

Affective expressions describe subjective temporary valuations. They convey how a space as a whole feels here and now for a certain individual, and whether or not that person appreciates what he/she feels or senses.

Denotative features can act as generators for connotative features. And connotative features –when weighed against personal preferences and intentions– are criteria for affective features. However, experiencing architectural space is a process that takes place through ever shifting perspectives between these categories.

This process is largely dependent on the characteristics of a person’s individual sensitivities, and on his/her intentions. It is made possible by what Gallese (2005) calls ‘embodied simulation’: a direct, pre-reflexive form of simulation that functions before and below a detached, sensory based imitation of observed stimuli. Embodied simulation implies we internally simulate other individual’s actions and emotions by activating mirror neurons. The other’s actions and emotions are understood by means of an embodied simulation producing a shared body state. It displays the dual nature of our own body as the sensing subject and the sensed object of our perceptions.

These simulation mechanisms not only proved active when observing but also when anticipating actions, both those by others and those by ourselves. Our capacity of action anticipation by simulation mechanisms implies we don’t effectively have to perform an action to sense its consequences. This allows to explain why and how we experience –rather than conceive– ‘affordances’. We bodily sense and evaluate possible actions, and project our evaluation onto the environment as qualities. It also explains our ability to recognize tactile values without effectively touching (‘visual tactility’ or ‘haptic visuality’).

Moreover, simulation mechanisms can be active when perceiving (inanimate) objects as performing an action. So when experiencing architecture, we simulate perceived actions of (combinations of) architectural elements with our bodies: in a certain sense, we empathize with them physiologically and emotionally.

So experiencing architecture is a process that largely depends on neural simulation mechanisms. These embodied mechanisms are the main cause of our sensitive responses to aspects of the built environment and enable us to establish an affective relationship with the built environment. These sensitive responses come prior to the perception of objective properties: they constitute our first and most basic relation with the built environment. We sense before we perceive. As mentioned in chapter 2. Theoretical perspective, sensory attunement is a fundamental form of understanding we achieve by bodily interrogating what is around us (2.6 Conclusions).

4.3.3 Evaluation of data collecting methods

For future research, and for the following case-study research in particular, the data collecting methodology of the explorative research trajectory is evaluated. It consisted of collecting first-person descriptions of architectural experiences by using different methods, from a variety of respondents, and in diverse cases.

The cases showed a variety in type, function, size and location of the different buildings. Besides some pragmatic issues (accessibility of the building, availability of architectural information, cooperation of the architect), they had in common a potentially high impact factor. Still, despite the fact that all cases are remarkable, not everyday buildings and the students nor the visitors had visited them before, all testimonies proved relatively short. It indicates the habitual perception of architecture happens with marginal and passing awareness, and describing an architectural experience is an ambiguous task. Resultingly, in order to collect a substantial amount of relevant data, the cases should preferably have a high impact factor. Unfortunately, as the case of Sporthal Spoor Noord demonstrated, this can not be accurately predicted but only be estimated or guessed, based on personal experience and/or reviews of the building.

The methodology also comprised a diversity in respondents in order to examine which aspects get noticed by which kind of users. Three categories of respondents were defined: visitors (people who are not professionally involved with architecture and aren't familiar with the building), users (people who use the building regularly), and researchers (students architecture). Both in between and within categories, the amount of relevant data collected per individual respondent varied greatly. This variety in quantity may be attributed primarily to different levels of personal sensitivity, but also exhibits a high dependency on language skills, confidence, personal background and frame of reference. Still, while in general the categories of visitors and researchers show similarities both in quantity and content of the collected data, the category of the users clearly stands apart. Not only did it prove extremely difficult to collect any amount of relevant data from the users, almost all data turned out to provide only generic or vague information. All students unanimously agreed the efforts of collecting information from the users vastly outweighed the returns.

Three data collection methods were implemented.

The students' own experiences were documented by voice-recording a live

narrative of their personal experience while visiting the building. The voice-recordings were complemented with pictures and sketches of those places or features that left a remarkable impression, made during or immediately after the first visit. As the initial tests suggested, the voice-recording method turned out to work very well. Besides being easy, cheap, readily available and almost non-intrusive, it provides useful information that –as far as possible– reflects what the respondents notice extrospectively and introspectively during their visit. The pictures and sketches did not add extra information, but did support the verbal data, especially in conveying it to other researchers (other students and myself).

The users were asked to give two students/researchers a guided tour around the building, showing at least two of their most and least favourite places. The users were fitted with a GoPro camera to capture both the narrative and the visual focus of the user during the tour. The GoPro camera made several users uneasy and sometimes proved distracting. The guided tour presented a challenge to some of the users: they found it confusing as their focus regularly shifted between the researcher, their own live experience, and their visual focus. The moving images were too fragmentary to add value.

The visitors visited the building by themselves and were asked to take pictures of those places or features that left a remarkable impression. They were interviewed by the students immediately after their visit, based on the pictures they had taken. The interviews were documented by voice-recording. When discussing this method beforehand, there was concern that relying on pictures made during the visit would prompt an exclusively visual focus. Both the initial tests and the actual research showed this was not the case. The method worked adequately and produced a body of data that is largely similar to that of recording a live narrative. It can be argued that the data consists of information that is already a reflection on the actual experience, and thus presents a constructed and selective account. The impact however was generally regarded as negligible due to the minimal time-interval between the visit and the interview. Still, all students agreed that recording a live narrative proved a little more convenient and provided a slightly more detailed and fuller account.

4.4 CASE-STUDY RESEARCH

The second stage consists of case-study research with a focus on collecting and graphically representing first-person descriptions of architectural experiences, building upon insights and findings of the explorative research trajectory. Sixteen masterstudents architecture participated over the course of one semester in a research assignment designed to this purpose.

4.4.1 Data collecting

Cases

The explorative research made clear the cases should at least contain the promise of a high experiential impact. In accordance with common sense, both Böhme (Böhme, 2006) and Rauh (Rauh, 2012) have identified churches as evident examples of such cases. However, the high impact factor of churches depends for a large part on our familiarity with historic western, Christian rituals and symbols. A more profane and contemporary substitute is found in crematorium buildings. Fortunately, four architecturally interesting crematorium buildings have recently been built in Flanders by highly esteemed architects.

Crematorium Hofheide, Holsbeek

Location: Jennekensstraat 5, Holsbeek

Design: Coussée & Goris architecten, Aranda Pigem Vilalta Arquitectes

Crematorium Het Daelhof, Zemst

Location: Erasmuslaan, Epepegem

Design: Christian Kieckens Architects, DAE-ir. Johan Van Rompaey

Crematorium Uitzicht, Kortrijk

Location: Ambassadeur Baertlaan 5, Kortrijk

Design: Eduardo Souto de Moura, Sum Project

Crematorium Heimolen, Sint-Niklaas

Location: Waasmunsterse Steenweg 13, Sint-Niklaas

Design: Claus & Kaan Architecten

Respondents

Each case is assigned to a group of four students, who also act as respondents. They invite another group of four students and two visitors of their choice to act as complementary respondents. As such, ten testimonies are collected per building.

Data collection method

Both the students' experiences and those of the visitors are documented by voice-recording a live narrative of their personal experience while visiting the building.

Additionally, the students who conduct the case-study gather the usual architectural information about the building: design and construction drawings, relevant data from brief to completion, reviews and assessments.

4.4.2 Data analysis

A compact data analysis is conducted on all testimonies in order to evaluate, enhance or consolidate the findings from the first stage, and to provide the basis for creating a graphic representation of the buildings' experiential qualities.

All recordings are fully transcribed and relevant expressions are identified and listed. As in the explorative research, all expressions are then grouped according to the denotative, connotative or affective nature of their overall content. From this categorization, composite descriptions of the architectural experience for each building are composed by identifying commonalities among the individual testimonies per building. The commonalities constitute the essential data that needs to be communicated in the graphic representation of the building.

Listing and grouping

As in the previous stage, expressions are demarcated by their overall content. Their size can vary from a single compact phrase to a cluster of sentences. Relevant expressions are listed as they appear chronologically in the texts. Expressions are then grouped into three categories: denotative, connotative and affective. In order to highlight nuances within each expression, (groups of) words that clearly belong to a certain category are marked accordingly. The amount of listed expressions per person varies between thirteen and seventy. This remarkable increase compared to the explorative stage (four - eighteen) can be attributed to a number of factors:

- buildings' experiential impact factor
- longer stay in the buildings due to made appointments (crematoria are not public, freely accessible buildings)
- students' motivation
- students' focus and background knowledge, due to a more extensive preparation

CREM. HOFHEIDE
Coussée & Goris

	denotative	connotative	affective
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Jade Cobben (st.)

32		Wow, so high.	
33	A big tv-screen. Speakers in the same colour as the walls.		
34	Oeps, I am in the wrong space.		
35	There is a lot of draught here.		
36	The doors are so big you can't close them by hand. The door closed. A big bang, I look up. A huge door, maybe 5 meters high, corten steel. And above me a skylight.		
37		I enter a long corridor with artworks on the wall. They appear to be made out of paraffin. Slippery. Wax maybe. Soft, it looks like a blanket.	
38	I enter a new hall. This hall is almost square.		
39	Again hard benches, hard pillows.		
40	Speakers in the same colour as the walls like in the other space.		
41	Again light from the ceiling. Holes in the ceiling to improve the acoustic qualities.		
42		A volume that descends in the middle of the room. A concrete volume. It does not create sanctity but light. It connects the indoors with the outdoors.	
43		Beautiful space, beautiful light.	
44			I feel dreary, so alone.
45	Now and then I hear a sound in the distance. Apart from that only the rain or the air-conditioning. A whoosh.		

- my own improved proficiency in researching experiential qualities, and initiating and guiding experiential case-studies

The testimonies confirm the findings from the explorative research. Similar core-themes and essences re-appear, following analogous mechanisms. Although the testimonies are considerably more elaborate than those of the previous phase, the nature of their content and the mechanisms involved do not substantially differ.

One noticeable difference is a much larger emphasis on the impact of the presence of other subjects. This can be ascribed to the particular purpose of the building. The anonymous confrontation with grief is often perceived by the respondents as an inappropriate transgression of privacy. Another difference is the complete absence of “recollections” in all testimonies. Most respondents acknowledged that they were unfamiliar with funeral ceremonies so far.

Composite descriptions per building

Composite descriptions are created for each building by identifying commonalities among the ten individual descriptions. Similar and largely overlapping expressions are brought together and reformulated in a summarizing phrase. Commonalities are then grouped by location in the building and classified according to their denotative, connotative or affective overall content. They are further subdivided in core-theme categories as identified in the explorative phase.

The composite descriptions give an overview of the main experiential elements and aspects of the buildings.

Each one textually represents a general and thus abstract spatial experience. Still, while being based on concrete experiences, they sketch a realistic picture of the experiential qualities of the buildings. The composite descriptions contain all commonalities found in the individual testimonies, regardless of their ambivalence or contradictory nature. As such, they do not aim for coherence but attempt to approximate the diversity and complexity of the experiential qualities as manifested in actual experiences.

CREM. HOFHEIDE**Coussée & Goris****composite description****approach**

affective

feelings confusing
 bleak
 recollections

connotative

mood/feel parking lot is dreary, too open, not finished, bare
 building appears modest, not monumental
 building looks closed, massive
 raw materials, beautiful combination, unity / coherence
 passageway opens itself to the landscape
 passageway feels spacious, open, well structured
 serene atmosphere at passageway, cosy

affordances entrance is not clearly indicated, searching for the right entrance – direction – orientation
 passageway allows to gather in group
 passageway invites to wait, pause
 passageway as a place to rest between arriving and entering

associations building hides itself behind the trees
 building reminds me of a box, a coffin, a bunker, a castle
 floating island
 supermarket parking lot

denotative

material wide road sloping down
 concrete path + concrete bridge over water (pond) towards the income
 small waterfall
 large awning with cortensteel slats
 no openings in the building

non-physical sound of cars on the nearby highway
 reflection of the building in the water
 view on the field of trees from the passageway

entrance

affective	
feelings	
recollections	
connotative	
mood/feel	entrance is restful
affordances	
associations	entrance resembles a cave
denotative	
material	large doors with glass and cortensteel lats, doors open automatically everything in concrete cast in situ, counter in similar colour openings in the ceiling, lamps built in in openings toilet doors decoration: birch-sticks, plastic flower garlands
non-physical	difference in temperature, warm

hall	
affective	
feelings	
recollections	
connotative	
mood/feel	tranquil, restful, serene safe - oppressing warm atmosphere clear, structured
affordances	you can comfortably walk side by side portal to the ceremonial spaces
associations	coffin, tombe subterraneous
denotative	
material	everything in concrete cast in situ artworks: synthetic material (epoxy, wax, plastic?), bumpy, in relief in concrete openings in the ceiling, lamps built in in openings wide and high cortensteel lats separate space from auditoriums
non-physical	long, very high space

a lot of echo
 streak of zenithal light, yellow lighting
 sloping floor
 no view outside

auditorium 1

affective

feelings "I feel sad"
 "shivery to enter the space"
 "like I sneak in someplace I am not supposed to be"

recollections

connotative

mood/feel tranquil, restful, serene
 not intimate, cool, distant
 unfinished
 sober, uniform, homogeneous
 private, closed off

affordances no diversion, focus on ceremony
 gathering and sitting down in a large group
 addressing a group, making a speech

associations church
 building by Tadao Ando

denotative

material everything in concrete cast in situ
 rows of steel benches
 tv-screen on the wall
 technical installation partly visible in the ceiling
 soundsystem in same colour as the walls
 cortensteel lats separating the space from the hall
 high steel doors

non-physical two different levels of height in the longitudinal direction
 zenithal light on the right side through long slits in the ceiling
 zenithal light above the 'altar' through rooflight
 artificial lighting
 crosswise shadows
 sloping floor, sloping up towards the end of the space
 beautiful acoustics
 no view outside

4.4.3 Graphic representation

Parallel with the experiential research, a more traditional architectural research trajectory lead to the creation of isometric perspective drawings of the buildings and their surroundings. Together with the composite descriptions, these drawings form the basis for the search to graphically represent experiential qualities in architectural drawings.

Since the search is explorative by nature, it aims to detect and test suitable representational means. It looks for hands-on architectural applications without claiming originality, completeness or singularity.

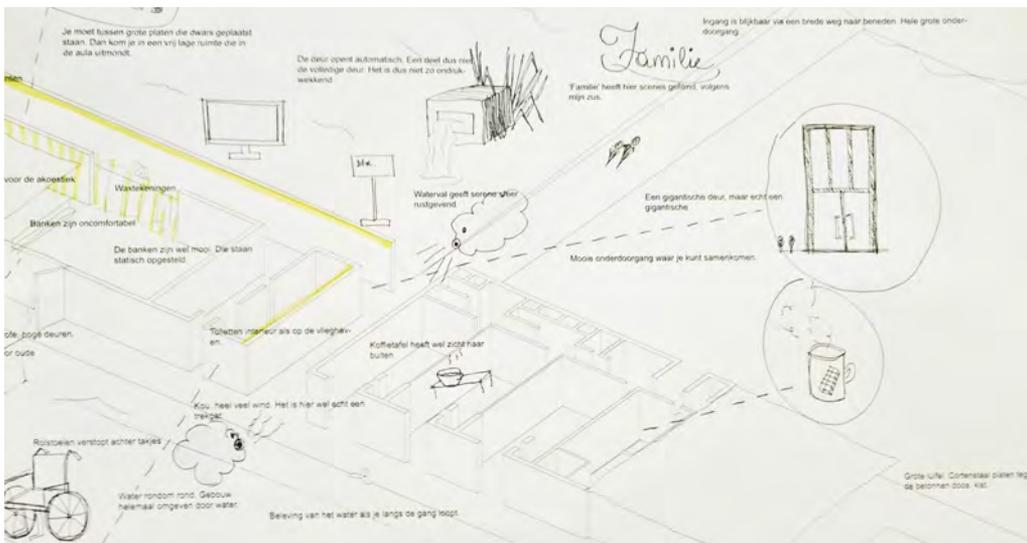
Isometric perspective

At first, all expressions from the composite descriptions were directly written on the isometric perspective drawings. This quick and easy method, inspired by Jan Rothuizen's 'The Soft Atlas' project (www.janrothuizen.nl/drawings/), served as a stepping stone between the two parts of the case-study research: data collection and data analysis, and graphic representation.

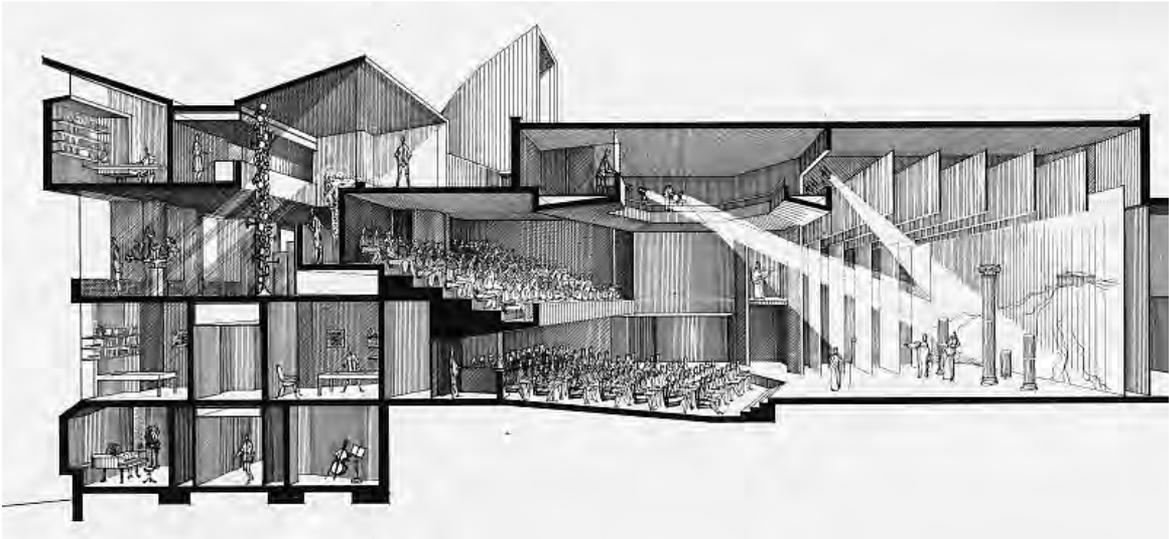
Those expressions that were readily translatable in drawings were represented in simple sketches.

The process of translating written expressions in naïve drawings continued until no more expressions could be easily transferred into logo-like images without compromising on content.

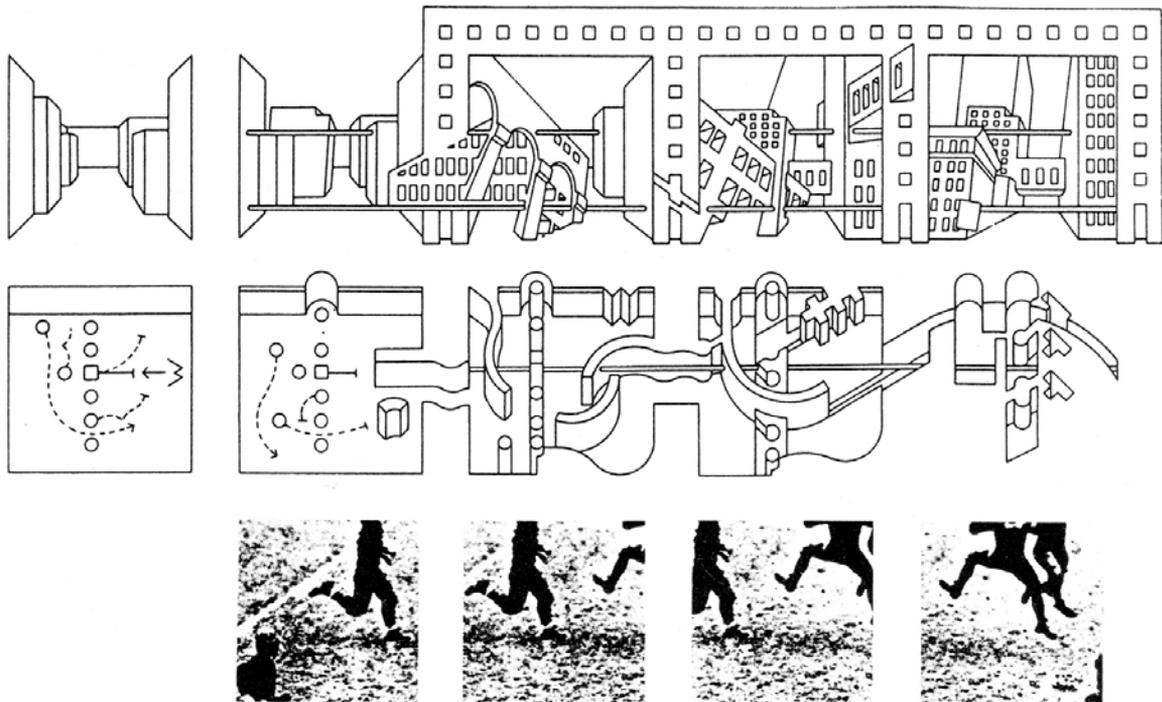
During this process, the textual composite descriptions formed the touch-stone for ensuring no relevant data was lost while transferring text into drawings.



Section rendering of Dana Arts Center, Paul Rudolph (1964)



Fragment from The Manhattan Transcripts, Bernard Tschumi (1976-1981)



At the end of this process, three important concerns remained:

- the translation of the remaining text into drawings
- the coherence and professional quality of the drawing
- the suitability of the drawing to represent the overall character of the building

Frame of reference

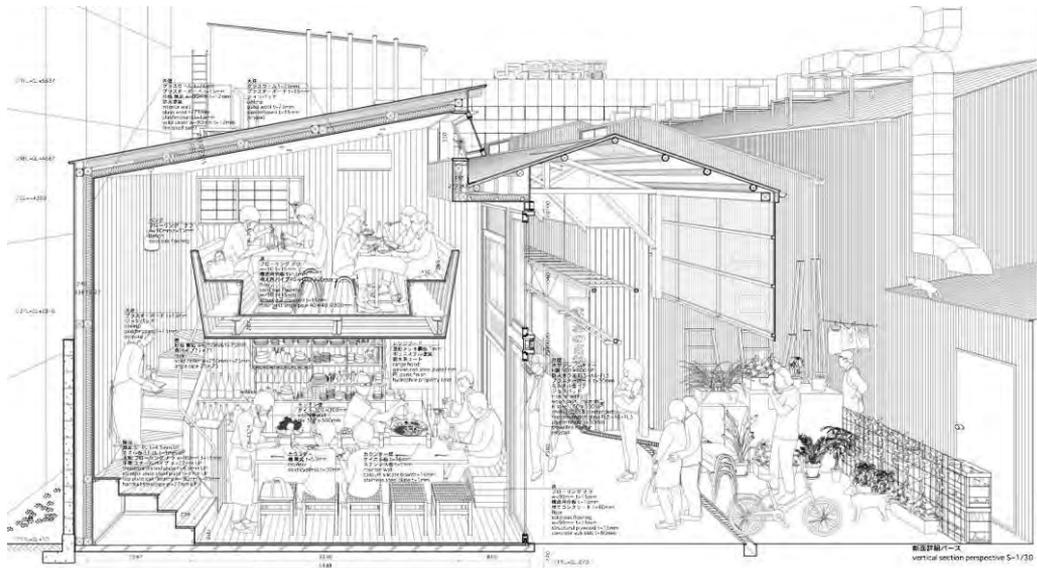
As neither the students nor I had a clear idea on how to proceed from this point, we looked for generative knowledge that could help advance the process. Employing a common method in architecture and architectural education, I initiated the building up of a frame of reference by researching historic and contemporary examples from architecture and more or less related professional fields: painting, comics, graphic design, film.

The references served to broaden the scope of representational techniques customarily applied in the architectural profession. A wide variety of references were scanned on a diversity of topics, among which narrative, drawing techniques, use of perspective, lay-out.

Some examples:

Architect Paul Rudolph's virtuose perspective section renderings in black and white not only show building elements, but also furniture, light conditions, textures and finishes. They almost always include human figures in order to portray the spatial proportions of the interior volumes. The drawings, although highly stylized, allow the viewer to visualize as realistic as possible the total effect of the designed environment. Still, as Rudolph himself admitted: *"The renderings are merely a formulation to indicate the general scope of the project, but only the imagination finally determines the character of any building. One can only imagine unbuilt buildings. They can never be truly drawn and so no model or drawing can ever show their ultimate nature."* (www.paul-rudolph.org/paul-rudolph/art-architecture)

Bernard Tschumi's 'The Manhattan Transcripts' is a theoretical visual work that presents atypical architectural drawings. The unconventional drawings do not aim to represent architecture, but to transcribe an architectural interpretation of reality by assessing "the complex relationships between spaces and their use, between the set and the script, between 'type' and 'program', between objects and events" (www.tschumi.com/projects/18/). They are composed of successive frames, horizontally and vertically, that outline three relating but never coinciding themes: 'space', 'movement, and 'event'. This structure involves photographs that witness events, and plans, sections, and



Graphic Anatomy of restaurant Apron, Atelier Bow-Wow (2012)

The Dream of Pope Sergius, workshop of Rogier van der Weyden (1437-40)



diagrams that outline spaces and indicate movements.

Atelier Bow-Wow's Graphic Anatomy drawings make use of detailed section perspectives to illustrate information about the building technologies, spatial composition, contextual relationships, surfaces, furnishings, and occupant behavior in a single drawing. These diagrammatic illustrations include architectural details, environmental elements of the surroundings, incidental objects such as furniture and plants, and people. They aim to represent the interrelation between the diverse characteristics and qualities of the (built) projects.

Rogier van der Weyden's painting 'The Dream of Pope Sergius' depicts an angel appearing to pope Sergius in a dream, instructing him to appoint a new bishop, Saint Hubert. It also shows the pope in a brick enclosure and, in the far distance, on the steps of the early Saint Peter's Cathedral. The painting is composed as a collage of scenes that depict different stages of the story, with the pope involved in a process of events. It includes highly detailed objects, interiors, cityscapes, landscapes and lifelike figures at different and discordant scales. The use of multiple perspectives (there are at least three different vanishing points) suggests multiple viewpoints and thus a 'moving viewer'. The rather strange combination of extremely faithful images of reality and the use of distorted scale and perspective invites the viewer to engage in the picture and assemble sequences from the moments portrayed. The unifying element is not scale or perspective, but narrative.

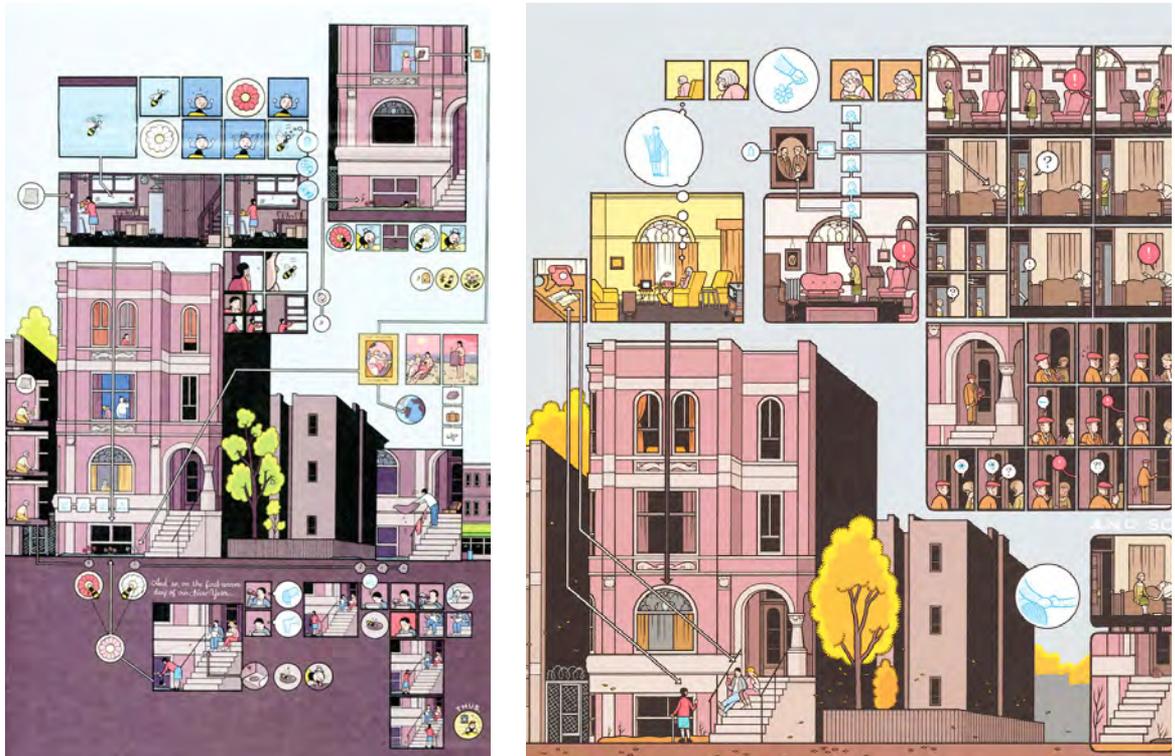
The Rakuchu-Rakugai-Zu screen paintings (16th to 18th century) provide bird's-eye views of the city and environs of Kyoto, Japan's capital at the time. The paintings include buildings such as palaces, temples and shrines; natural features such as hills and rivers; and elaborate scenes of everyday life and festivities. The spaces between them are filled with golden clouds. They generally make use of the oblique projection method. This rather simple drawing method preserves the elevation and does not make use of a vanishing point (the position of the observer is not identifiable) nor of exact foreshortening (the scale of depth perception is arbitrary). It suspends all forms of hierarchy in the illustration, allowing the viewer to explore the scenes in any order, starting anywhere.

Building Stories by Chris Ware is a graphic novel about the lives of the residents of a Chicago apartment building. The work comes in a box containing 14 different books, pamphlets, posters and miscellanea. One of the books shows drawings that are composed of a central image (a façade, a perspective, or a diagram) of the building, combined with interconnected but fragmentary sequences of cartoonish micro-panels. These depict the characters' actions,



Fragment of Rakuchu-Rakugai-Zu screen painting (1620-25)

Illustrations from Building Stories, Chris Ware (2012)



thoughts, observations, hopes and dreams, and recollections. The panels are arranged by association, quickly changing focus, subject, scale, time, and even narrator perspective. The form and composition allow readers to pick up the narrative wherever they choose. No clues are given about what order to read the multifaceted story in, nor about how to mentally assemble all the pieces. The result is a demanding graphic novel whose structure resembles the structure of consciousness itself. It forces the reader not only to construct his own narrative trajectory but also to reflect on his/her personal experience of reading the novel.

Graphic representation

Inspired by findings from the referential research, the first drafts were created. The development of the drawings was a tentative investigative process, similar to a trial-and-error process but guided by intelligent reflection based on the students' and my own expertise (not unlike the architectural design processes in educational studio's that I am familiar with).

As examples of the final results, the two most illustrative cases are exemplified below: crematorium Hofheide in Holsbeek and crematorium Uitzicht in Kortrijk. (The final drawing of crematorium Daelhof –although conceptually promising- fell short of representing the overall character of the building, and that of crematorium Heimolen lacked professional quality.)

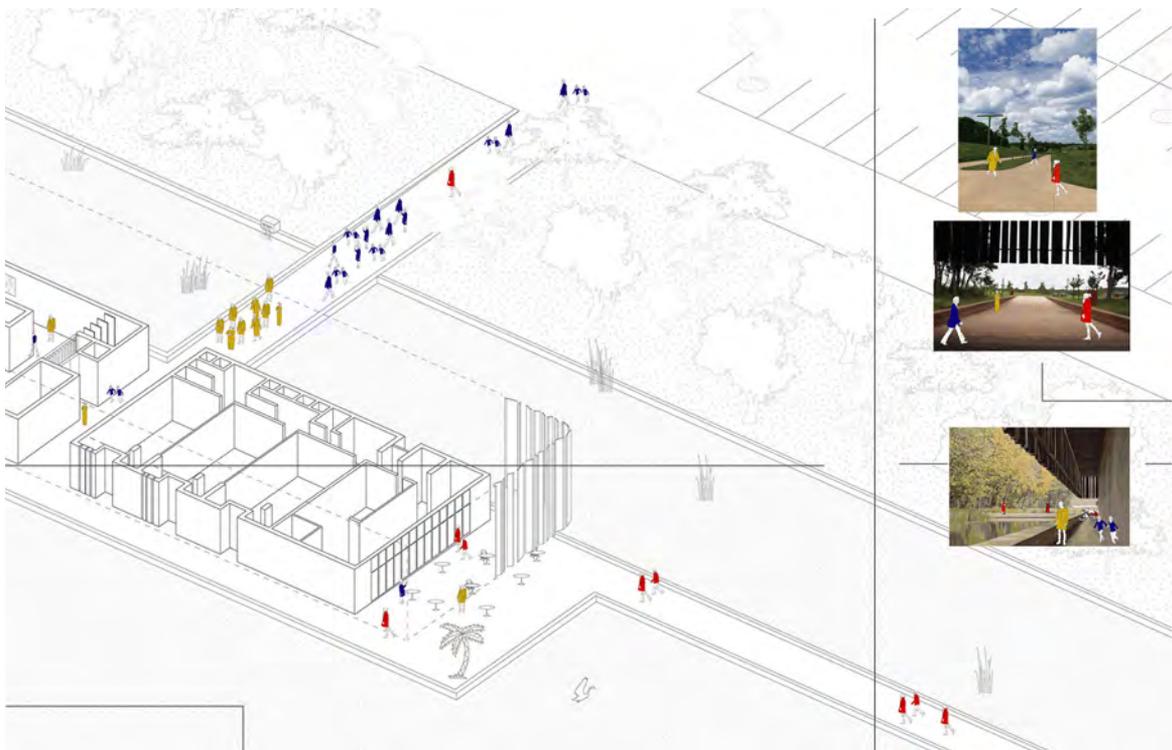
The final drawing of crematorium Hofheide in Holsbeek remains close to the initial architectural drawings. It consists of an isometric perspective drawing of the building (with its roof cut off) in its surroundings, complemented with a network of adapted pictures.

The bird's-eye view perspective drawing in black and white shows the layout of the building and the immediate surroundings, and the main features mentioned in the composite description. It includes (some) building elements, furniture, additional objects, and environmental elements such as surfacing, trees, water, and traffic. They are all depicted on the same scale and in clear, architectural graphics. Groups of people are added in such a way they represent the building's organizational scheme. They also scale the drawing and function as pointers to link the drawing to the pictures: key figures can be found both in the drawing and in the pictures.

Full colour pictures are added to complement the features shown in the drawing. They depict scenes as observed from eye level and are adapted in Photoshop to highlight those aspects that get mentioned in the composite description. The pictures are arranged in such a way they allow to create different narratives that correspond to the diverse and interconnecting trajectories



Final drawing of crematorium Hofheide



Fragment of final drawing of crematorium Hofheide

through the building and its immediate surroundings.

The combination of the black and white drawing and the full colour pictures mimicks the relation of the building with its surroundings. The building posits itself as a rigid monochromatic volume in a playful yet structured natural environment. The nonhiërarchic final drawing forces the spectator to gradually discover it in a way that resembles the actual experience of the building.

The final drawing of crematorium Uitzicht in Kortrijk demonstrates a different approach. The overall feel of the crematorium is mainly dictated by the fact that the building is for a large part situated under ground level. The drawing captures this feel by carving the building's main spaces out of a black mass, situated on and below a horizon line.

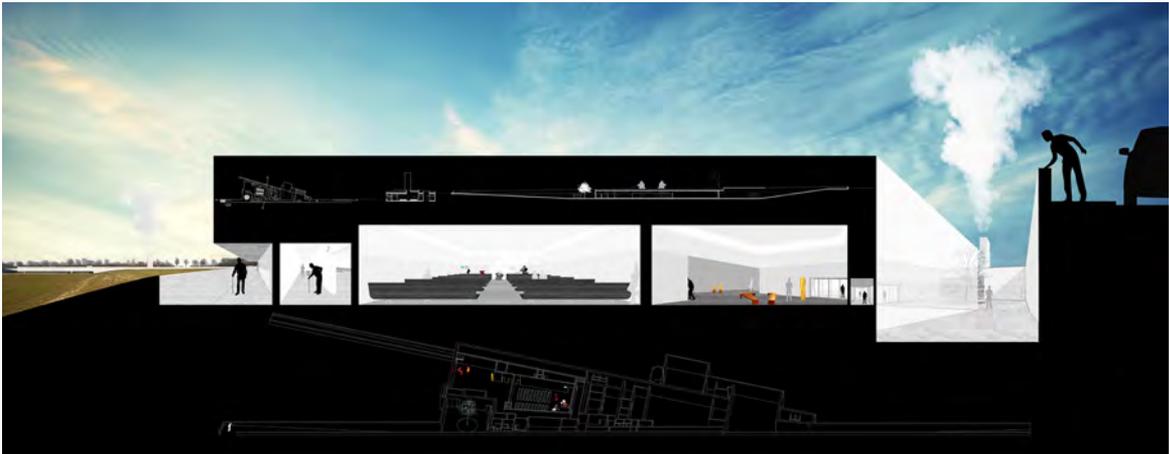
The main spaces -drawn in greyscale- are arranged linearly to mimick the one directional trajectory of the visitors. They are each depicted in different one-point perspectival drawings on different scales. The aim here is to architecturally represent the visitors' trajectory through the building, rather than representing the building's architecture correctly. The minimalistic drawings include schematic human figures that scale the drawings, and key furniture and miscellaneous objects -rendered in colour- that represent the 'generators' described in the composite description of the building.

The sequence of interior views is complemented with a schematic isometric perspective drawing showing the lay-out of the building in bird's-eye view. It is drawn in fine white lines on the black mass below the interior views. It includes the same furniture and objects in full colour as the interior views in order to allow the viewer to reconstruct the trajectory depicted by the views in a more or less objective way.

Additionally, conventional plans and sections of the building -also drawn in fine white lines- are added on the black mass above the views. These drawings afford a more conceptual understanding of the building.

On the horizon line, the silhouette of the entire building is rendered in its surroundings. An identical smoke plume billowing from the chimney in the silhouette and the section drawing, indicates both drawings depict the same building.

The illustration makes use of conventional architectural drawing methods in a non-conventional way. It aims to blend physical reality and experiential narrative ('actuality') in a single coherent collage-like image that combines different representation techniques, on varying scales, and with changing viewpoints and focusses.



Final drawing of crematorium Uitzicht



Fragment of final drawing of crematorium Uitzicht

4.5 CONCLUSIONS

As mentioned in paragraph 4.1 Goals and ambition, the aim of this part of the research is threefold. Firstly, it wants to improve our understanding of the nature of experiential qualities of architecture by providing more insight in the components and mechanisms that are at work in spatial experience as it occurs. Secondly, it intends to expand the scope of attention in architectural assessment, by revealing and clarifying qualities of architecture that are largely ignored in the usual assessments of built architecture. And thirdly, it researches if and how these subjective qualities can be graphically represented in architectural drawings.

The nature of experiential qualities: components and mechanisms

The common view on how we relate to the built environment is grounded on the assumption that we cognitively process what the world projects to us: our brains trying to make sense of what we perceive face-to-face with an external reality. This assumption is in turn based on the idea of a strict separation between subject and object, and between mind and body (cf. 2.3 Perceiving subject). The research however shows that in spatial experience as it occurs, we barely differentiate between ourselves and the environment, nor between thought and perception or between perception and feeling. It actually takes quite a bit of methodically formalized effort to pry these categories apart, resulting in a reductionist understanding that partly denies the phenomenon itself.

Experiencing architecture does not merely happen to us as a reaction to a built environment, rather it is something we enact. It is a responsive achievement, originating from our simultaneous and mutually entangled perceptual, physical, affective and cognitive relation to what is available to us. And what is available to us is not only the fixed physicality of the built environment, but also the opportunities for action the environment provides and -crucially- the awareness of ourselves as subjective, sentient beings. "There is no such thing as how things look independently of this larger context of thought, feeling and interest. What we know and what we see (and feel) push and pull against each other, and they move each other and guide each other and tutor each other." (Noë, in Jones, 2016, p.229) Experiencing architecture is an action resulting from extrospective, introspective, and action related observation. This observation must not be constrained to mere perception but inevitably also involves sensation, recognition, understanding and skill.

The complexity and diversity of what constitutes an architectural experience

shows from the empirical research. Analysing the testimonies of the respondents demonstrates they do seldom and barely distinguish between themselves and the architectural environment. Both extrospective and introspective observations get mentioned interchangeably. In order to identify the essences and core-themes however, the components of the architectural experiences are categorized according to their denotative (objective), connotative (in-between), and affective (subjective) content.

The denotative category houses those expressions that describe the perception of architectural elements. They belong to the objective constitution of architectural space and by themselves do not form intrinsic parts of the experience. The empirical research shows denotative features can be both physical and non-physical. The physical aspects predominantly comprise the used materials, objects, and colours. The non-physical aspects include light, form, shape and relative dimensions of the space and its objects, the use or functioning of the space, and views of and relation with the surroundings. Combined, denotative features can act as generator for connotative aspects. The more coherent the whole, the more likely the combined features act as generator.

Connotative features form the category that marks the core of the spatial experience. They can not be ascribed exclusively to the objective environment nor to the subject, but rather act as intermediary between object and subject. Also, as interpretative characterizations (sensed qualities) of combined features, they act as intermediary between the different senses. Connotative features mainly comprise the general mood or feel of a space and its possibilities or potential for action (affordances), but also typological associations are regularly mentioned. Connotative features seem to be sensed immediately and grasped as a whole before attention is paid to more objective features of the space. As such, they act as some sort of guiding system to what is being perceived.

Affective expressions describe subjective temporary valuations. They convey how a space in total feels here and now for a certain individual. This valuation is predominantly based on a combination of connotative features that are weighed against personal preferences and intentions. The affective category houses those features that relate either to a combination of pleasantness and arousal, or to personal recollections.

The basic condition for connotative and affective features to be experienced, is the physical interrelation between an empathic subject and a space. In sensing how I feel, I notice the kind of space I am in. And in noticing the kind of

space I am in, I sense how I feel. Noticing the kind of space I am in, entails perceiving not only its quantitative properties but also its actuality: its character, its appearance, its (often immaterial) qualities. As the research shows –and Böhme and Zumthor acknowledge– the subjective awareness of these features can not be attained nor explained by the combination of mere perception and cognition. It requires a form of sensitivity, mindful physical presence, or bodily awareness.

This sensitivity at least partly sprouts from what Gallese (2005) identifies as embodied simulation. Probably, it even is the fundamental mechanism for spatial experience. Embodied simulation is a direct, pre-reflexive form of simulation that is not the result of a willed conscious effort but from automatic neural processes. It is instantiated by the activation of mirror neurons that are part of our somatosensory system. In general, the mechanism can be described as the activation of the motor system without actively moving our bodies: action is not produced but only simulated. In relation to other people, objects and environments, we bodily respond to their actions and action potentials by imitating these actions without actually performing them. Analogous mechanisms also apply to emotions and sensations, and sometimes even to perceived intentions. Thus, by producing a phenomenal state of attunement (or empathy), embodied simulation is at the basis of both body awareness, basic forms of social understanding, and spatial awareness. Through the activation of mirror neurons we precognitively mimick aspects of our built environment. When we consciously register these introvert processes, we evaluate them and project the findings back onto the environment as its inherent qualities. We express them as connotative and affective features: mood or feel, affordances, and a combination of pleasantness and arousal. (Typological associations and personal recollections also find their origin in embodied simulation but additionally require a substantial cognitive, retrospective input.)

Embodied simulation provides a credible and adequate explanation for our capacity to establish an affective relation between ourselves and the built environment.

Firstly, through action anticipation by simulation mechanisms we can bodily sense and evaluate possible actions without effectively having to perform them. It explains why and how we experience –rather than conceive– affordances. It also accounts for our sensing of tactile values without having to touch surfaces: by neurally simulating the act of touching, we have the capacity to mirror tactile values, and thus to sense texture, hardness, warmth. Secondly, our capacity to empathize with other people by intersubjective embodied simulation also applies when we observe inanimate objects, though not in every case and not with the same intensity. Mirror neurons have proven

active when perceiving objects as performing an action. When experiencing architecture, we simulate perceived actions of objects (building parts) with our bodies. Through embodied simulation mechanisms, we animate the inanimate architectural environment. In a certain sense, we empathize with it physiologically and emotionally, thus creating an affective response to the built environment.

On architectural assessment

Architecture, like almost any discipline, thrives on critical reflection, discussion and debate about its products. They lead to increased understanding and confidence by offering the means to learn about the 'how' and the 'why' of buildings. The task of architecture discourse is to offer insights that have value, make things accessible and articulatable, challenge preconceptions, make interpretations, or suggest what to look for and where to look. It can be aimed both at the practicing architect, at theoreticians, at architecture students, and at anyone visiting or using buildings in real life or through the surrogate of photographs, digital models or texts.

In paragraph 1.1 Problem statement, I already indicated that architecture discourse tends to suppress experiential qualities as a criterion to assess architecture, both in professional publications and in academic education. The inhibition to discuss how we encounter and respond to architecture results in (or is the result of) a discourse that favours conceptual, physical or quantifiable aspects and only registers the experiential phenomenon marginally. Architecture discourse almost exclusively supplies the vocabulary for representational and judgmental articulations and discussions referring to cognitive and mainly self-referential features: concepts, style, form and technique. Even those publications that aim to explicitly address experiential qualities easily resort to quantifiable narratives (eg. McCarter & Pallasmaa, 2012).

It implies architecture discourse has so far largely failed to make experiential qualities accessible and articulatable to both architects and users. By predominantly focusing on architecture's quantitative properties, it has neither provided systematic or explicit knowledge nor created confidence in dealing with its qualitative features. By adhering to a distanced (mainly visual) perception of reality as the accepted standard, it has largely neglected a fundamental – and probably the prime- mode of perception in architecture: embodied experience. As the research shows, we relate to architecture first and foremost by sensing its actuality (qualitative features), not by perceiving its reality (quantitative properties).

The lack of understanding and confidence showed in the research trajectory as the students found themselves on slippery ice and struggled to detect points of reference. In order to cope with the experiential qualities of the buildings they visited, they had to adopt a perspective they weren't used to nor found in architecture discourse: that of the emphatic subject. Still, despite differences in pace and nuance, they almost all succeeded in expanding their habitual conceptual comfort-zone in the course of the assignment. Moreover, every single student acknowledged the (personal) confrontation with the topic was an illuminating and useful experience for their education as architect.

So distinctly, architecture would benefit from a discourse that discloses experiential qualities more consistently, a discourse that naturally incorporates qualitative features in the way it assesses architecture.

This requires acquiring the ability to involve sensory modalities in architectural assessment. In addition to understanding its conceptual and physical properties, we need to render ourselves sensitive to the architectural environment and develop the right kind of communication (cf. Latour, in Jones, 2016). We must at least attempt to make ourselves and others aware of and responsive to experiential qualities.

To do so, we firstly ought to strengthen, optimize, or transform our personal sensitive equipment. Being sensitive is a capacity, a skill we can acquire, practice, and develop. Sensitizing oneself necessarily implies rigorous introspection. Whether it's called 'mindful physical presence' (Böhme, 2006), 'perceiving yourself perceiving' (Irwin, in Eliasson, 2007), or 'aesthetic perception' (Latour, in Jones, 2016), it entails capturing and inquiring our affective subjectivity in relation to architecture. In other words, we need to attend more carefully and explicitly to the subject-pole of architectural perception.

Secondly, we ought to take experiential qualities serious instead of reducing them to marginal, disturbing by-products of cognitive understanding. Doing so may allow to gradually overcome the inhibition to discuss how we encounter and respond to architecture (cf. Chelkoff, 2010).

So how do we render ourselves more sensitive to architecture, how can we optimize our sensitive instrument? Before anything else, it demands we cease restricting our interrelation with architecture to mere perception and interpretation of physical conditions (as defined in 2.2 Architectural space). Becoming sensitive means in the first place becoming aware that we do not relate to architecture as to a still life. When encountering architecture, we do not find ourselves as stable subjects face-to-face with a fixed (architectural) object. The idea of freezing both the subject and the object is a simplification that, among others, also requires the odd reductive abstraction of a fixed point of view.

In the empirical research we surpassed this restriction by confronting students with the duality between conceptual analysis and phenomenological observation in architecture. They recorded real-time architectural experiences in situ. As such, they were being made attentive to and were able to study what in the habitual everyday experience of architecture escapes focal attention but is nevertheless present (cf. Bader, 2015). As many students testified in their evaluation of the assignment, by being forced to explicitly talk (into a voice-recorder) about what they were experiencing, they uncovered features and topics they had been (sometimes subconsciously) aware of but had never explicitly expressed or discussed.

So the basic requirements needed to render ourselves sensitive to architecture are the intent to do so, someone to tell us what to look for and where to look, and preferably an environment with a more or less heightened impact factor. Architecture discourse can point out the relevance of that intent, and can provide us with the knowledge and know-how to carry out that intent. It is up to architecture practice to supply us with choice architectural environments.

Remark

In trying to enhance one's personal sensitive instrument, it can be advantageous to carefully select the appropriate environment, to choose the right object to relate to. The research shows the environment preferably offers the potential of a heightened impact factor. This implies there exist environments with low and high experiential impact potential.

The low end of the experiential spectrum is constituted by the humdrum -where the environment forms the backdrop to our daily actions and tasks- and by those environments that are characterized by aimless incoherence -as opposed to phenomenal unity, or coherence of the whole (Zumthor, 2006). The high end is formed by those environments that induce an immersive experiential state. These environments can be found in architecture but also, and relatively much more frequent, in installation and theatre arts. Similar to architecture, these arts produce environments that subjects can bodily relate to. But they have the advantage of having to cope less with practical functionality, social desirability, ergonomics, durability, etc. Due to a greater autonomy, they enjoy the freedom to create more extreme, inquisitive, explorative, or provoking environments.

Many contemporary artists -such as Olafur Eliasson, Robert Irwin, Bruce Nauman, Carsten Höller, Bill Viola, Robert Wilson, Romeo Castellucci- create works that specifically aim to activate the sentient spectator, stage perceptual experiments, evoke a sensitive response, challenge perceptual assumptions, induce experiential self-reflexivity, expose possibilities. By providing highly experiential conditions freed from the burdens of daily reality and direct pragmatics, these

works can generate intense, unfamiliar, engaging, and enlightening experiences. They can provoke what Gallese (in Jones, 2016, p.245) calls a state of 'liberated embodied simulation'. In my own experience of trying to enhance my personal sensitive instrument, some of these works have acted and keep acting as keystones.

Graphic representation

As mentioned, architecture thrives on critical reflection, discussion and debate about its products. But as its products (buildings) are fixed in place, actually visiting and experiencing them in their physical reality can often be arduous or plainly impossible. As a result, many people know most buildings exclusively from a combination of representations: texts, photographs, drawings, (3D-)models. In architecture, much knowledge about buildings is recorded, explored and communicated by some form of graphic representation, in particular by projection drawings and perspectival drawings. In architecture discours, these drawings act as a kind of linguistic system to convey information about built, not built, or not-yet built architecture. Insofar they are not intended as actual endresults of architecture practice, they serve as substitutes for architectural products.

Conventionalised architectural drawing techniques however offer little means to convey experiential qualities on a two-dimensional plane. Plans, sections, façades, and perspectival drawings in all their variations predominantly represent buildings or building parts as fixed objects, as still lifes. But an experience is a conscious episode that is perceived as a phenomenal unity and is characterized by its affective quality (2.1 Spatial experience). So two major characteristics of spatial experience do not get represented in conventional architectural drawings: the fact that an experience is conceived over a period of time, and its inherently subjective, introspective nature.

Part of the case-study research consisted of an explorative inquiry aimed to detect and test suitable methods to incorporate these characteristics in architectural drawings. Rather than trying to convey or express a particular architectural experience in an autonomous drawing, this part of the research looked for hands-on applications that can be grafted onto conventionalized drawing techniques.

Since an architectural experience is a consciously demarcated episode (a period of time experienced as standing out from our continuous interaction with the built environment), it entails some sort of a plot, a narrative that develops and runs its course. So one of the main problems during the research was to somehow incorporate narrative in inherently static architectural drawings.

(The option to resort to virtual reality or other interactive media formats was quickly abandoned due to its technical complexity and the limited opportunities for dissemination.)

One effective strategy proved to introduce human figures in the drawings in such a way they allow to mentally construct actual trajectories through the building. In a sense, the figures provide visual clues for possible narratives the viewer of the drawing can compose. They work particularly well when implemented unobtrusively (when their purpose can be ‘discovered’ by the viewer) and when they do not impose priorities in meaning (when not enforcing one or another narrative as being more important, or as being right or wrong). Another, possibly concurrent, option is the use of multiple perspectives. Combining different view points and/or vanishing points in one drawing invites the viewer to move through the building. It modifies the conventional ‘still life’ architectural drawing into a more dynamic representation. Reading the drawing requires engagement and some sort of exploration that –at best- resembles or approximates experiencing the actual building (even if inevitably in a limited way). The use of multiple perspectives may require –and be enhanced by- the use of different scales.

Overall, conveying experiential narrative in architectural drawings seems to benefit from facilitating a sense of discovery, from a gradual non-hierarchical unfolding of the intentions of the author.

The other major concern was to graphically represent the overall affective quality of the building, and the mood or feel of its different spaces. Since it quickly proved hardly viable to draw connotative and affective features in such a way they could be implemented in conventional architectural drawings, we tested if they could be evoked by drawing the perceived generators. Although the results varied, and not everybody agreed on the level of success, at least two drawings out of four (see 4.4.3 Graphic representation) succeeded in effectively conveying the experiential impact of the building by depicting the generators (both material and non-physical). The two drawings were created by using different strategies and techniques. Although we tried, it proved not feasible to portray the different cases (and we only had four) by using the same techniques.

So an overall prescriptive recipe for representing connotative and affective features could not be distilled from the explorative research. It rather suggests that such a recipe does not exist. Still, some general provisional considerations and guidelines can be formulated.

- The overall picture must be coherent and possess a pervading quality that mimicks the main overall experiential quality (or qualities) of the building.
- Depicting and highlighting the generators helps to convey the experien-

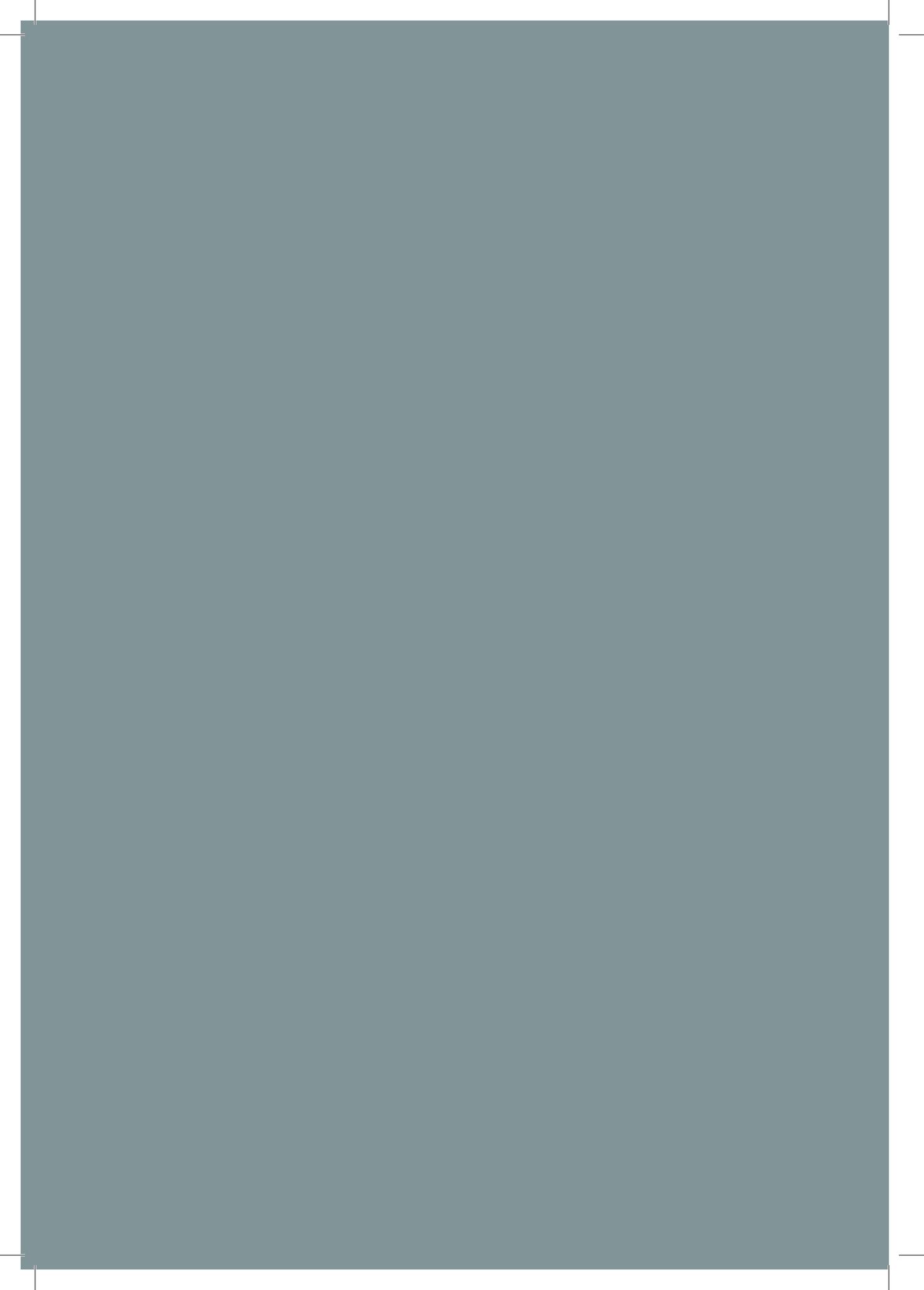
tial impact they trigger or to which they contribute.

- Drawing the building ‘as a still life’ reduces the subject to a fixed, objectified viewer. Abandoning the notion of a fixed (or absent) view point and the use of different scales not only contribute to actively engage the viewer in the drawing, it also makes it possible to combine details, components, fragments, the overall composition of the building, and its relation to the surroundings in a non-hierarchical way. It allows to graphically mimick the rapidly shifting attention between general characteristics and fragments or details of the built surroundings (cf. 4.3.2 Data analysis).

Remark

The research to graphically represent experiential qualities in architectural drawings was highly explorative and only consisted of four cases. Despite these limitations, it opened up an interesting and vast field of possible research. And since the first attempts were promising, it fuelled the aspiration to personally conduct further research in this area.

5. conclusion



In this final section, I look back on some of the important aspects of the research.

To start with, I evaluate the general approach and the research trajectory.

I will then reflect on the main findings of the research. This reflection does not aim to summarize the outcomes of the different perspectives that are already formulated at the end of each chapter. The aim is to critically assess what the research has yielded and to indicate its potential value for architecture. To this end, I reflect on the research project from two opposite directions. I firstly take a panoramic view on the research in order to draw conclusions that transcend the separate research perspectives. Secondly, I review the research from an introspective viewpoint. I evaluate the impact of the research on my personal evolution as a researcher/design teacher and speculate on what this may imply for architectural research, design, and design education.

Finally, some recommendations and possibilities for subsequent and related future research are suggested.

Research trajectory

Since the research initiated from a rather broad intention, its focus at the beginning was somewhat vague and fragmented. “This research aims to contribute to an improved understanding of the nature of experiential qualities of architecture, with the intention to clarify what role experiential qualities can play in architectural design and in assessing architecture.” (1.2 Research question) To provide more grip on the overall research goal and topic, the general intention was dissected into more manageable research questions. These lead to the general structure of the research.

I decided to approach the research topic from three different but related points of view: from a theoretical perspective, a design perspective, and a user perspective. In order to specify and delimit the general topic and direction of the research, the development of a provisional theoretical framework proved to be a logical and indispensable first task. Based on the theoretical research, the questions of design and assessment were approached separately. Due to pragmatic concerns, research environment conditions, and presented opportunities, these two tracks have evolved more or less simultaneously. This approach allowed for both tracks to inform and influence each-other mutually during their development, implementation and completion. Since the highly explorative nature of both tracks, their mutual influence presented some advantages. Rather than proceeding linearly on a narrow path by working purposely on clearly defined (sub)topics –which seemed impracticable at the start of the research- the research could evolve more holistic. Also, because the perspectives are not mutually exclusive and overlap, (sub)topics could re-emerge in the different tracks, thereby allowing richer, more nuanced, ambiguous, and sometimes even contradictory findings. Since spatial experiences are unique -situational, subjective and intentional- processes, variety and discrepancy in data was plausible and even desirable.

However, as a research strategy, the simultaneous development of the user and design perspective had its drawbacks. In retrospect, they appear as obvious.

- Both tracks initially lacked a clear and sufficiently delimited focus. For researching the user perspective, this only posed a brief obstacle. The seeming disadvantage quickly exposed some knowledge gaps that otherwise may have remained hidden at greater length. It probably accelerated the necessary explorations needed to carry out this part of the research. For researching the design perspective, the negative effects of an inadequate initial focus were more profound and persistent. In the design studio's, the vagueness of the design task considerably stalled

the formulation of concrete design intentions. And adding factors such as introspection and intuition, while also disabling problem-solving as the dominant design strategy, destabilized the already messy and unpredictable design processes to a level beyond most students' reach. Though educationally interesting, it resulted in a discrepancy between research efforts and return. Looking back, the design perspective could have benefitted considerably from the research results of the user perspective. The design track would have probably run more efficiently had it been implemented after the user track.

- Working simultaneously on different tracks required a relatively complex working schedule with dispersed attention. For an inexperienced researcher as myself, this strategy at times proved hard to manage and repeatedly led me astray from the research focus. On the plus side, it has generated valuable fringe output and presented me some worthwhile experiences.
- The overall approach has amplified the already eclectic character of the dissertation, resulting from the explorative nature of the research. I have tried to attune the different perspectives by adding crossreferences. While they work for me, I can imagine some readers crave more coherence.

These drawbacks might have been anticipated to some extent. Still, they are inherent to the strategy itself. Its explorative nature implied the course of the research would be fairly unpredictable, and I would be confronted with problems I could not foresee.

The scope of the research project, in combination with its exploratory nature, has evidently impacted the width and depth of certain parts of the research. Covering a broad area by various investigations, some of the (sub)studies fall short on thoroughness. The theoretical perspective would benefit from a more in-depth study of 'embodiment' and 'the emotion paradox'. Both the design and user perspective could be substantiated by larger sample sizes, more case-studies, and further experimentation. I realize this research project only scratches the surface. On the other hand, I think the surface scratched is quite expansive.

The same partly applies to the research methods that I developed and used throughout the research trajectory. The combination of the exploratory nature and the multi-faceted approach of the research, necessarily resulted in an exploration of diverse architectural research methods. Not only do the used methods differ from chapter to chapter, each chapter itself consists of an assemblage of different research methods. The exploration shows the po-

tential of a wide range of academic research methods in architecture. Both for assessing and designing architecture, it points to possibilities to further develop and strengthen architectural research (cf. Future research). Refining and perfecting these research methods may be particularly interesting for architectural education, especially in bringing (design) education and research closer together (cf. 3.8 Annex).

Research findings

When researching the nature of experiential qualities from a theoretical viewpoint, I explored concepts from architecture theory, perceptual psychology, neuro- and cognitive sciences, and phenomenological philosophy. Although the current state of knowledge on the topic is fragmentary, and some parts of this exploration are somewhat sketchy, the theoretical research provides a useful general framework and overall definitions.

More importantly perhaps, by overstepping the boundaries of the architecture discipline, some of its dominant assumptions and conceptions on experiential qualities are questioned and discarded. These can be basically summarized as follows: experiential qualities are involuntary and minor by-products of a purer, more valuable cognitive understanding of architecture. This view is persistent but seems to be based on reductionist, outdated scientific models and ideas. The theoretical research track provides insights and alternative models that, however incomplete and preparadigmatic, allow to rethink how we and our (built) environment relate.

The key element is our concept of 'the perceiving subject'. Predominantly based on dualistic conceptions, our habitual view on the subject has been proven inadequate for addressing experiential qualities of architecture. A far more promising perspective is provided by embodied models. By rejecting a strict separation between mind, body and environment, embodied views on the subject allow to reassess the relation between emotion or affect and rationality, and between a subject and its surroundings. From an embodied perspective, an architectural experience is not some kind of purely emotional response happening to us as an involuntary reaction to an independent, static environment. It is the result of an intentional process achieved or enacted by an embodied subject as a deliberate conceptual reaction to his/her being affected by an architectural space. Moreover, this process -which can be called sensory attunement- seems to be a fundamental form of understanding. It constitutes our first and most basic relation with the built environment. We sense before we perceive.

These theoretical findings are substantiated by the case-studies conducted

from a user perspective in chapter 4. They show that in spatial experience as it occurs, most people barely differentiate between ourselves and the environment, nor between thought and perception or between perception and feeling. A substantial part of any architectural experience consists of introspective observation: of the awareness of ourselves as sentient beings in an architectural context. It follows that architectural experiences are far more dependent on our personal sensitive capacities than on our cognitive understanding of architecture. These capacities at least partly sprout from what Gallese (2005) identifies as embodied simulation. Embodied simulation is a direct, pre-reflexive form of simulation that is the result of automatic neural processes, instantiated by the activation of mirror neurons that are part of our somatosensory system.

Together, these findings call for a thorough reevaluation of experiential qualities in architecture discourse and assessment. It seems that when relating to architecture in everyday life, cognitive understanding is a by-product of -or at least follows behind- sensory attunement, rather than the other way around.

The undervaluation of experiential qualities in architecture is also reflected in the design track. This part of the research demonstrates that architectural design practice largely lacks knowledge and confidence on how to address experiential qualities in the design process. Since experiential qualities are usually poorly validated in architecture discourse and research, they are commonly perceived as having little relevance to architectural design practice. While many other factors contribute to architects' discomfort in addressing experiential qualities, their poor status -combined with a lack of systematic knowledge- may well be its fundamental root.

In conversation with R. Weschler in the Getty Museum garden he designed, Robert Irwin mused: "Because it all comes down to how you answer a single question: Is the moment of perception -that first moment, before all the abstracting, conceptualizing processes that follow- is that moment closest to or furthest from the real? Everything depends on how you answer that question." (Weschler, 2008, p.259)

Applying the question to architecture, there are at least two perspectives to consider.

From a user perspective, I would say the moment of perception (when interpreted as 'sensing') is definitely closest to the real. As stated in 4.4 Conclusions, sensitive responses constitute our first and most basic relation with the built environment. In confrontation with the built environment, I believe

it is time to replace the Cartesian catchphrase “I think, therefore I am” by “I sense, therefore I think”. This shift also succinctly summarizes my personal evolution during this research trajectory: transforming from primarily trying to understand architecture cognitively –by grasping its conceptual, physical or quantifiable properties- to firstly sensing (or trying to imagine) its subjective qualities. It has modified the way I assess architecture, making the relationship more personal, more direct and more genuine to me. Lately, appreciation regularly makes way for enthusiasm (and once in a while for passion). And, importantly, since I valid this way as at least equally legitimate as more cognitive approaches, I seldom feel uncomfortable about articulating my subjective, experiential assessment any more. So clearly my own relationship with architecture has benefitted from the research. By extension, I think the research results can truly enhance and enrich the assessment of the built environment in architecture discourse.

From a design perspective, the answer to Irwin’s question seems more ambiguous. This is partly due to the research itself (cf. 3.4.1 A shortage of suitable reports & 3.5.1 Setting up an architectural design studio) but certainly also to the nature of architectural design processes (cf. 3.1 Goals and ambitions & 3.6 Gaps and needs in architectural practice). To Irwin’s question in particular, it is unclear what constitutes ‘the real’ in architectural design. During design processes, there only exists a representation of a possible future reality so ‘the real’ is inevitably already an abstraction. When designing, abstracting and conceptualizing processes necessarily come prior to the moment of perception. To designing architects, ‘the real’ as intended by Irwin is not a concrete reality, but an aspiration to a future reality. And since these aspirations –represented in design proposals- largely depend on the way a designer positions him- or herself vis-à-vis design issues, they are to a great extent individual and personal. The considerations and principles I formulated for improving architectural design processes however were mostly targeted to architectural design practice in general, and therefore lack specificity to be usable in a distinct design case. As such, they do not provide an appropriate basis for answering Irwin’s question. It seems this requires a more specific approach, which in this case –since aspirations are personal- means a more introspective perspective.

As described briefly in 3.7 Annex, the impact of the research on my own development as a teacher in architectural design became particularly evident the past year in the reworking of the design studios in the first bachelor year in architecture at the Antwerp University. As mentioned, my colleagues and I did explicitly aspire to make experiential qualities the focal point of study during all design exercises. This aspiration considerably advanced the shift in focus in architecture education towards a more phenomenological perspective

at our faculty (cf. Preface). By doing so, we implicitly agreed we would like to consider the moment of perception as closest to the real in the design studio. Still, the aspiration raised two major concerns:

- Can the students be taught to address –and advance in addressing– experiential qualities during design exercises?
- Does making experiential qualities the focal point of design exercises enhance the design processes and/or the design proposals?

Since the workings and results of the design studios haven't been extensively evaluated –let alone been researched– yet, nuanced and thoroughly substantiated answers to both questions can't be provided yet.

Still, the general nature of the answers tends to be positive. The used methods and tools –partly provided by my research– do allow to introduce, address and discuss experiential qualities in the design studio. And by sustaining the focus on experiential qualities during the successive exercises, most students do acquire a 'sensitive skill': they noticeably become more apt to and more proficient in addressing experiential qualities. Perhaps most importantly, my colleagues and I already agree that focusing on experiential qualities considerably enhances the students' design processes, and in most cases results in more exciting, better architectural designs.

Returning to Irwin's question, I can thus say that the moment of perception –as an aspiration– should be closest to the real from a design perspective. And, promisingly, I can also confidently state that this research has at least provided me and my professional environment with a more solid basis for addressing experiential qualities during architectural design processes. They have become less elusive.

Future research

Due to the exploratory nature and broad scope of the research, a deepening of almost all conducted studies seems desirable. This would not only allow to substantiate and refine the research findings, but also to further develop and finetune the applied research methods.

Throughout the dissertation, I have already hinted at some concrete possibilities for follow-up research.

The design perspective appears to be the worst affected by the explorative research approach. The intention of the design track was to identify and expose gaps and needs in architectural design practice. Based on these findings, it then aimed to suggest considerations and recommendations that can help provide a more solid basis for generating design proposals and making archi-

tectural design decisions concerning experiential qualities. Although I have fairly succeeded in pin-pointing what is lacking in architectural design practice, the intention to clarify what role experiential qualities can play in architectural design has been left largely unaddressed. Still, as I mentioned above, the research does contain some promising indications. To explicate these indications and bring them together in a coherent framework, a follow-up design studio research seems advisable (3.5 Observing and analysing architectural design processes). This research can be similar to the explorative design studio research described in this dissertation, but would considerably benefit from:

- devising a clear and demarcated focus in order to provide the students with a straightforward design brief
- supplying firm footing for the students by means of a compact frame of reference (both in discourse and in architectural practice)
- devising an adequate design strategy and corresponding design methods

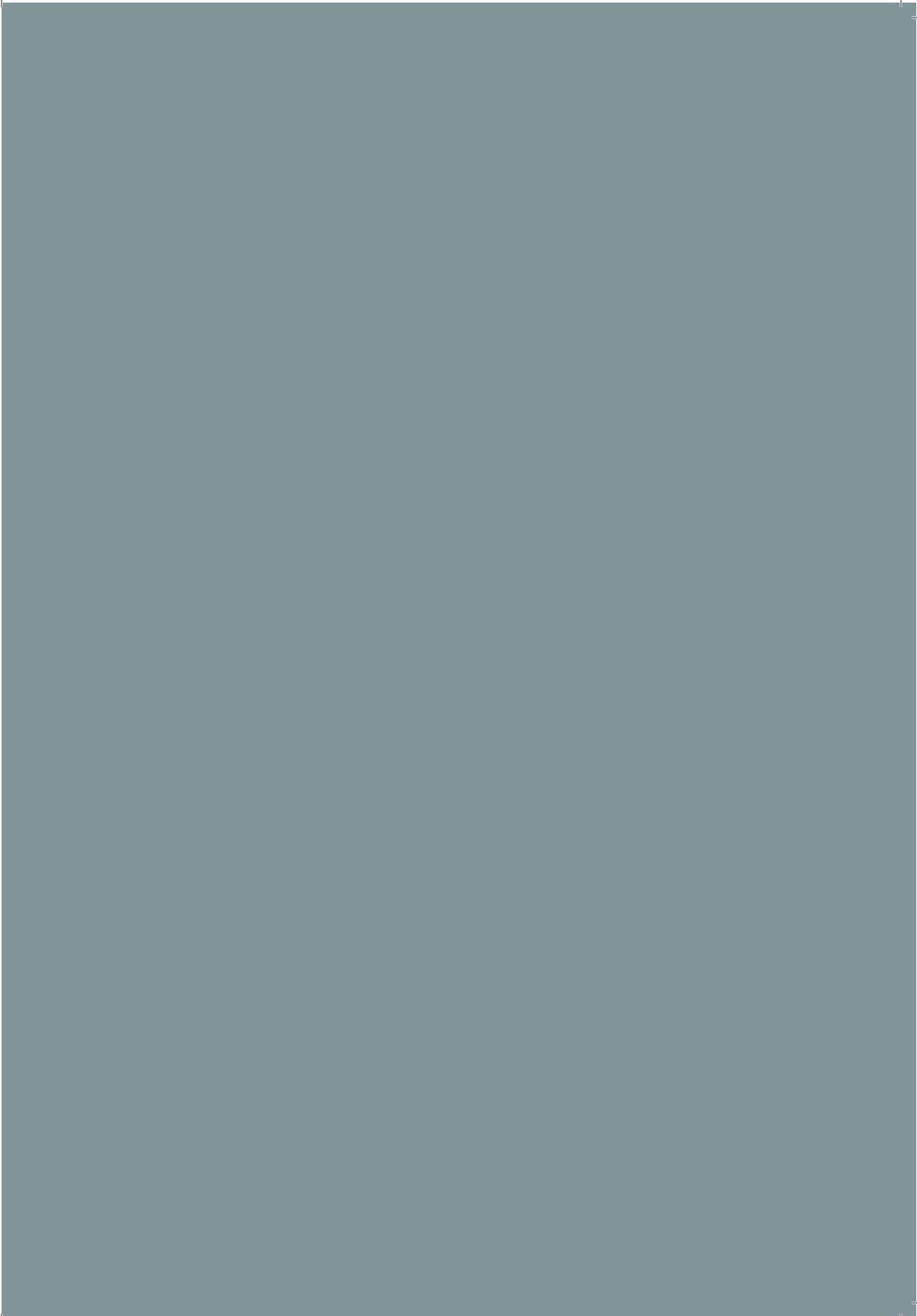
This research could be of great relevance and value to architectural design practice and education.

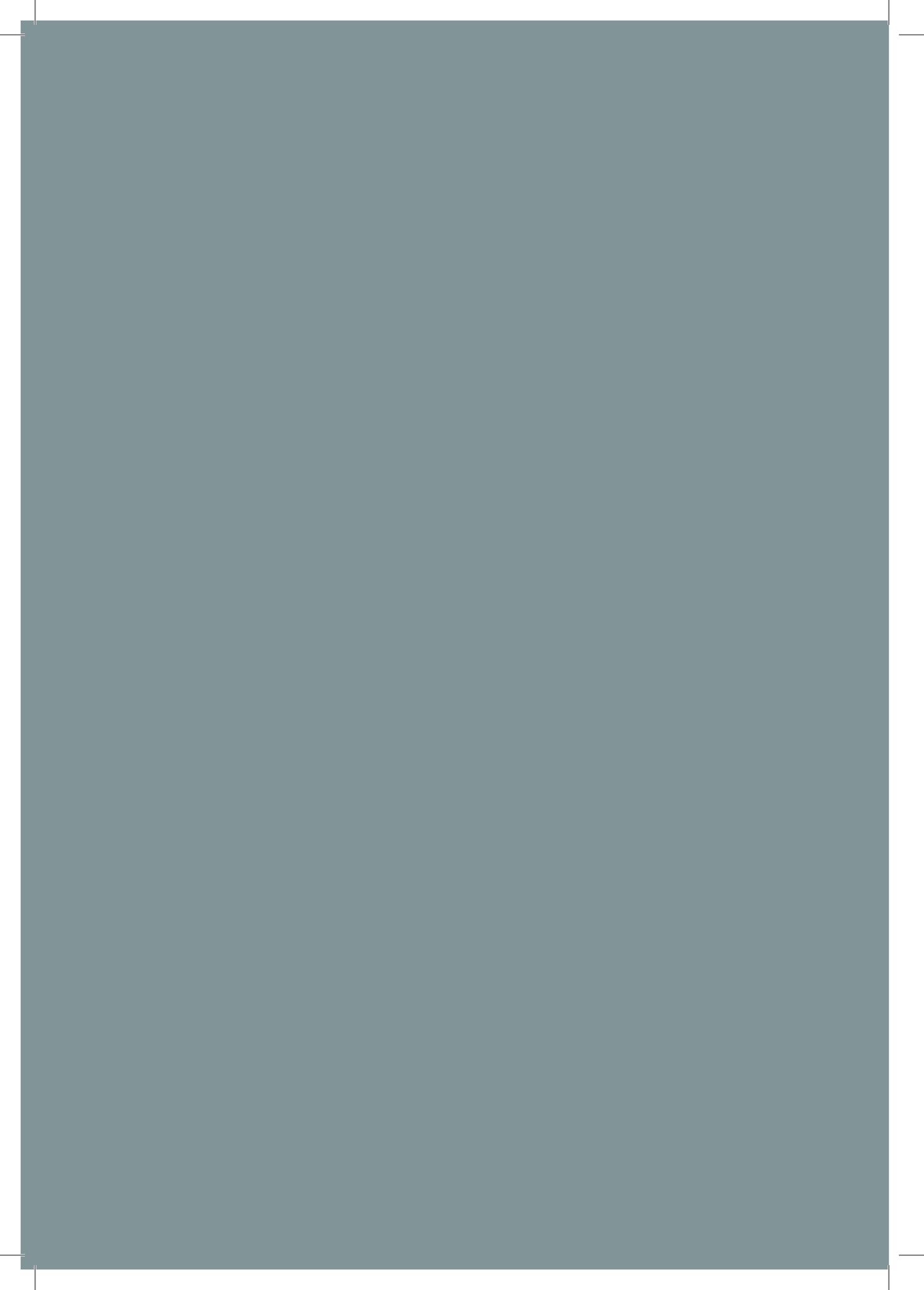
As mentioned, it also seems desirable to further substantiate the research from a user perspective. Its findings can be enhanced and finetuned by a larger number of and more diverse case-studies, and by involving bigger groups of respondents. Additionally, the empirical findings could be framed by a more elaborate theoretical framework. Since I only searched for related themes and concepts from architectural theory (4.3.2 Data analysis, related themes and concepts), it may be very worthwhile to expand this search to other relevant academic fields, in particular installation art, theatrical sciences and neurosciences.

The research has also exposed a potentially vast field of possible research projects that deal with architectural representation. It shows the conventional notation instruments -plan/section, isometric perspective drawing, abstract modelling- do not provide the means to accurately conceive or express the experiential features of an architectural design or of built architecture. They fall short both as generative tools and as communication tools in coping with qualitative properties of architecture. Since my research to graphically represent experiential qualities in architectural drawings was highly explorative and only consisted of four cases (4.4.3 Graphic representation), I believe it has only touched the tip of the iceberg.

Additionally, there is great demand in academic architectural education for knowledge on how to implement the notion of experiential qualities in educa-

tional programmes (both in theoretical courses and in design studio's). Based on my own experiences as a researcher and design teacher, and on the many reactions and questions I get when I present my research or the new curriculum for the design studio in the first bachelor year, I strongly believe this research should be expanded by one more research perspective: a pedagogical one. If we really want a thorough reevaluation of experiential qualities in architecture discourse and design (which I do), academic education might be a good place to start.





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ATTACHMENTS

In order to provide the interested reader with more background information and additional data, the following documents are attached to the dissertation in a digital form:

- Masterproef Architectuur - De Sociale Toolkit (211 pages)
- Masterproef Architectuur - Het ULEVEL (295 pages)
- Masterproef Architectuur - Abattoir In Situ (133 pages)
- Onderzoek - Crematorium Hofheide (52 pages)
- Onderzoek - Crematorium Uitzicht (25 pages)
- Studio Initiatie Ontwerp - Verslag Herfstsemester 2017 (156 pages)

Except for ‘Studio Initiatie Ontwerp’, all these documents present and reflect on research projects by architecture students that were initiated and carried out within the larger framework of my doctoral research. The first three documents (‘Masterproef Architectuur’) cover the design processes that are discussed in the observational track of chapter 3 (3.5 Observing and analysing architectural design processes). The two following documents (‘Onderzoek’) report on two case-studies of crematoria in Flanders (4.4 Case-study research). The last one (‘Studio Initiatie Ontwerp’) describes the recently developed curriculum for the design studio in the first bachelor year in architecture at the University of Antwerp. It illustrates the impact of this doctoral research on my own development as a teacher in architectural design, as described briefly in chapter 5. Conclusion.

The following pages illustrate some of the first pages of each document.



Masterproef Architectuur — De Sociale Toolkit

Amelien De Wel, Charles Krog & Marijke Driessen
 Copromotor: Hans Barber & Dirk Van Dosterwyck

Voorwoord

Wij zijn drie studenten architectuur aan de Universiteit Antwerpen. In ons laatste jaar ontwierpen we een nieuwe soort van nonconstructie, De Sociale Toolkit. Dit deden we vanuit een interesse in het maatschappelijke aspect van Architectuur. Bovendien werden we uitgedaagd om te experimenteren en te werken met nieuwe materialen. We hebben gaandeweg veel geleerd over de maatschappelijke impact van een architectuurproject op mens en omgeving. Bovendien hebben we ontdekt dat het maken van architectuur meer is dan het weergeven van tekeningen op papier. We hebben ondervonden met welke externe factoren rekening gehouden moet worden en in welke mate deze je werk beïnvloeden.

Dit proces hebben wij niet op ons eentje doorlopen. We kregen steun en hulp uit verschillende en soms onverwachte hoeken. We willen graag iedereen bedanken die op zijn of haar eigen manier heeft bijgedragen aan de realisatie van deze masterproef.

Zo willen we onze ouders, familie en vrienden bedanken voor de steun, de hulp en het verzamelen van het materiaal. Hierbij horen ook de scholten en de huishouders die veel drankkartons hebben aangeleverd. De sociale organisaties in Antwerpen willen we bedanken voor hun luisterend oor en de hulp bij het opstarten van het project. Zij gaven door hun inzichten en tips mee vorm aan de opdracht.

Voorwoord
 De Sociale Toolkit



Rektorat Universiteit Antwerpen
 Op: Dijksterweg 26 | 2000 Antwerpen

Foto: Okan Sint-Lodewijk
 Poster: Wouter de Vries, 2000 Antwerpen

Zonder Sint-Lodewijk, en specifiek de Okan-afdeling, hadden we niets bereikt. Zij vormden mee de kern van het project. Daarom willen we hen bedanken voor de kans die ze ons gegeven hebben om met hen samen te werken. In deze samenwerking is meer Dieter als contactpersoon cruciaal geweest, waarvoor dank. Ook mevrouw Marie willen we bedanken voor het uitbesteden van haar lessen aan dit project.

We willen onze (co-)promotoren, Dirk Van Dosterwyck en Hans Barber bedanken voor het formuleren van de opdracht, de begeleidingen en de goede sturing wanneer nodig. In dit rijtje mogen onze medestudenten niet vergeten worden. Ondanks dat ze het zelf druk hadden waren ze het afgelopen jaar een luisterend oor en een goede uitlaatklep. Hiervoor willen we hen bedanken. Voor praktisch advies konden we altijd terecht bij Nico en Sabbe van de Melano. Vooral het materiaal konden we rekenen op Pieter. Dank je wel allemaal! Farnus en de Cargo Zomerbar zijn ook twee belangrijke organisaties geweest tijdens het proces en vooral tijdens het opbouwen van onze constructies, we willen hen bedanken voor de kans die ze ons gaven.

Tot slot willen we veel dank aan de Okan-klass, namelijk Akora, Anthony, Tina, Thales, Marie, James, Rozwan, Vida, Mohamed, Seth, Roman, Sarah, Jigme, Aiza, Nelson, Rajula en alle andere enthousiastelingen voor hun medewerking. Zonder hen was dit project niet hetzelfde geweest. Merci.

Antwerpen, 24/04/2014.

Voorwoord
 De Sociale Toolkit

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Inhoudstafel De Sociale Toolkit

6

Inleiding

De Sociale Toolkit kadert binnen de ontwerpstudio Constructing Agency. Constructing Agency gaat verder dan de reguliere ontwerpstudio's. We beperken ons niet enkel tot het ontwerp, maar focussen ons op de hele organisatie die gepaard gaat met zowel het ontwerp als het bouwproces. Bovendien gaan we op zoek naar de rol en de betekenis van architectuur binnen de hedendaagse realiteit. Dit doen we vanuit onze eigen interesses en invalshoeken. In de volgende hoofdstukken doorlopen we het ganse proces, vanaf bepaling van de ontwerpogave tot het uiteindelijke resultaat met bijhorende reflecties.

Het eerste deel bevat de definitie van de ontwerpogave. Vanuit persoonlijke waarden, interesses en achtergronden gaan we op zoek naar de betekenis van een noodconstructie en formuleren we specifieke noden. Vanuit de interesse voor het maatschappelijk aspect van architectuur benaderen we de opdracht vanuit een sociale invalshoek. Hieruit willen we architectuur voor en met anderen maken. Het thema 'vergeten' vormt zowel op maatschappelijk als architecturaal vlak de basis om ontwerpintenties op te stellen. We streven naar een eindproduct dat als middel ingezet kan worden om anderen zichtbaar te maken en ze een stem te geven.

Nadat de opdracht gedefinieerd is gaan we samen op zoek met een Okan-klas, een onthaalklas voor anderstalige nieuwkomers, naar een specifieke nood. Dit doen we aan de hand van een aantal workshops. De leerlingen hebben nood aan participatie, nood om uit hun eigen leefwereld te treden en in contact te komen met anderen. Het definiëren van deze nood leidt tot volgende onderzoeksvragen die we in het verloop van het onderzoek willen beantwoorden. "Op welke manier kan architectuur bijdragen tot meer participatie?" Hoe betrek je anderen actief bij een ontwerpproces? En wat is de positie van de architect in dit geheel?



Definitie van de opdracht

12

Hiernaast worden alle noden opgetijld die we zijn tegengekomen tijdens onze analyse van bestaande rijwielrijke constructie.

-  Privacy
-  Huisvesting
-  Sociaal contact
-  Cultuur
-  Statement
-  Bescherming
Beschutting
-  Experiment
-  Verbinding
-  Plaats

CONSTRUCTING HET ULEVEL

DOOR: KAUWENS
GIFEN-SCHUUR, JERONIX, &
SOFIE SAVINNE

AGENCY

MENTOR: DIRK VAN OOSTERWYCK
PROMOTOR: JANS BARKER 2013-2014 MASTERPROEF ARCHITECTUUR
UNIVERSITEIT ANTWERPEN

ULEVEL²¹

HET ULEVEL

Na het zoeken van mogelijke partners bedachten we welke vraag we hen zouden stellen en op welke manier. In eerste instantie dachten we hen te vragen samen met ons een collectief op te richten. Onbewust veranderden we deze intentie en besloten reeds zelf een collectief op te richten. Op die manier zouden we krachtiger overkomen naar de mogelijke partners. Daarnaast leek het ook noodzakelijk een beginpunt van het project te kunnen meedelen, iets dat mogelijke partners zou triggeren, hen zou overhalen met ons te willen samenwerken. Ten slotte beschouwden we het ook als een noodzaak een intentieverklaring op te stellen aangezien vele van onze mogelijke partners duidelijk een eigen visie uitten. Zo zouden we een keuze kunnen maken tussen mogelijke partners aan de hand van gelijkenissen tussen intentieverklaringen. In dit hoofdstuk zal eerst de keuze voor het oprichten van een collectief toegelicht worden, verder wordt ingegaan op de zoektocht naar het startpunt voor het project, daarna wordt gereflecteerd op de intentieverklaring van het collectief en ten slotte wordt uitgelegd hoe we ertoe kwamen ons collectief de naam 'Het ULEVEL' mee te geven.

Dit document omvat het relaas van een proces. Een proces dat voortkomt uit de ontmoeting van drie persoonlijke zoektochten naar hun betekenis van architectuur.

Als drie studenten architectuur aan de Faculteit Ontwerpwetenschappen van de Universiteit Antwerpen kozen we ervoor ons te verdiepen in het masterproject Constructing Agency dat kadert in het doctoraatsonderzoek van Dirk Van Oosterwyck over performatieve ruimte. Dit project inspireerde ons omdat we er de mogelijkheid in herkennen er onze persoonlijke interesses in te verwerken. Het bood ons eveneens de kans ons werk te communiceren met een uitgebreid publiek. De intentie van dit masterproject omvatte immers het creëren van een constructie op schaal 1:1.

Aan het masterproject ging een vooronderzoek vooraf, waarin we in het kader van de herdenking van de Eerste Wereldoorlog een onderzoek startten naar noodconstructies. Al snel bleken de thematieken te verschuiven van noden zoals huisvesting en bescherming, naar de nood aan cultuur en expressie. In deze thematieken herkennen we een gemeenschappelijke interesse voor het artistieke. We beslisten de samenwerking aan te gaan en de krijtlijnen voor dit masterproject uit te tekenen. Het zou een project worden waarin we het statische karakter van architectuur doorbreken door de samenwerking aan te gaan met kenners van dynamische kunsten.

Vooraleer we het interactieve proces opstartten, zochten we naar thematieken die ons persoonlijk inspireerden. Het begrip beweging zou een vaste waarde worden, aangevuld met termen zoals tactiliteit, interactie, subjectiviteit en intuïtie. Om onze identiteit als groep te versterken beslisten we een collectief op te richten. Enkele dansers, muzikanten en een filmer zouden later dit collectief vervoegen. Samen trokken we op zoek naar een andere invulling van architectuur, met als fysiek doel de realisatie van een artistiek-architecturaal werk met bijhorende performance.

Aangezien we minstens evenveel belang hechten aan het proces als aan het fysieke resultaat penden we alles uitgebreid neer. Het eerste gedeelte van dit document omvat het theoretisch onderzoek. Dit presenteerden we reeds tussentijds en werd hier zonder wijzigingen opgenomen. Het tweede gedeelte beschrijft het ontwerp en de realisatie van het artistiek-architecturaal werk, gevolgd door een algemene reflectie.

We nodigen u graag uit deze bladzijde om te slaan en dit interactief proces te herbeleven.





34 CREEREN



BAMBOEFIETS
AFBEELDING 19



REGENTEST



REGENTEST

**ONDERZOEK
DEN DAM**
STEDENBOUWKUNDIG

In de eeuwenlange geschiedenis van Antwerpen zijn verschillende wijken te onderscheiden, waaronder den Dam. De geschiedenis van deze wijk gaat terug tot 1811, wanneer men het overstromingsgebied van de Schijn begon op te hogen. De dam die toen vertrik aan de stadsmuren en naar het noorden liep, resulteerde op de kruising met de Schijn in het gebucht 'Damsbrugge'. Later werd de kleine staddeel opgenomen binnen het grotere gebied van de Damwijk.

De aanleg van de Ring, de dijkken en de voormalige spoorlijn (Die Park Spoor Noord) lokte ook de wijk van de stad, waardoor deze een dorpsgevoel kreeg. Door de aanleg van de Lizeleaan, de locatie van het Lohrebekdijk en het voormalige slachthuis werd de wijk ingedeeld in vier delen: Dam-vooruit, Dam-Achteruit, Lohrebek en Slachthuis. Deze scheiding komt niet enkel visueel tot uitdrukking, maar ook geografisch. De richte Dammers wonen rond de kerk, menen sommigen. Het slachthuis wordt zo een wijk op zich.



14

Bladz. 1

**ONDERZOEK
DEN DAM**
SOCIOLOGISCH

Het slachthuis had invloed op heel de Damwijk. De vroegere bedrijvigheid bracht veel leven met zich mee. Ondanks het feit dat er van de vroegere 'slachthuisgebied' tegenwoordig niet veel meer te bespeuren valt, leeft het verschil in identiteit tussen de verschillende delen van den Dam nog altijd verder in de hoofden van de bewoners.

De slachthuis die de buurt bij elkaar hield en liet floreren, is momenteel niet meer dan een verlaten stuk grond met restanten van een vroeger prestige. De karaktervolle site, ooit het centrum van de wijk, is nu een 'paradijs' voor zwerfzwerf en verlatenheid. Het slachthuis waar iedereen zo trots op was, krijgt hardop steeds vaker een negatieve connotatie.

Lijf gesprekken met buurtbewoners en ex-werknemers blijkt dat de buurt het minne van vroeger echter nog niet vergeten is. Cafés als Den Drievak, de Bull Bar, Meet Me etc. zitten 'n moergens rond in het veld. Nette jassen lopen nog steeds over de straat. De vergane glorie is roeibaar. Met herinnering lijkt men naar oude foto's op de muur en denkt men terug aan hoe het was.

Ondanks de aanhoudende afwijzingen van museumplannen voor de herontwikkeling van de site, blijft de buurtwerking van den Dam liveen voor inspanning en participatie. Na een geschiedenis van betrokkenheid geeft de buurt ook nu niet op. De herontwikkeling van de slachthuiswijk is van fundamenteel belang voor de heropbouw van den Dam. Er is nood aan een nieuwe kloppend hart. Een hart voor de slachthuiswijk.



Bladz. 2

15

**ONDERZOEK
DE SLACHTHUISITE**
GESCHIEDKUNDIG

Het slachthuis van den Dam, ontworpen door Pieter Deris, werd geopend in 1877. Het gaf een gezicht en identiteit aan de wijk, wat zorgde voor een economische boost voor heel den Dam. Maar een openbare markt van 2,5 hectare in de slachthuisite openbaarlijk groeie ten opzichte van de Damwijk.

De opbouw van de site was zeer typologisch. Twee sokkels met afkanten accentuerden de hoekafkanten. Deze kolossale sokkels, gemaakt door beeldhouwer Auguste de Ryck, waren de enige twee standbeelden op den Dam. De typologie zette zich verder in de plaatsing van de overdekte publieke veemarkt vooraan. De slachthuisen waren achteraan de site geplaatst, weg van het publiek. Centraal op de hoek stond de veermeester die door zijn hoogte een duidelijk oriëntatiepunt vormde.

In WO I werd de site bijna volledig verniet door drie V2 bommen. Na de vernieling werd het verouderde slachthuis heropgebouwd. Deze heropbouw gebeurde in 1951 door architect Smeets. De gebouwen zijn georiënteerd naar de hand van een betonnen skeletstructuur en hebben een industrieel karakter. De opbouw van de site is niet te vergelijken met die van voor de oorlog. De typologische plabating van de veemarkt vooraan en slachthuisen achteraan is volledig verdwenen. Ook de laagrijn toeren wijzigd in functie. Deze factoren maken dat de site als minder herkenbaar wordt ervaren.

De huidige locatie van de slachthuisite, tussen het stationgebied en Park Spoor Noord, is achterhaald. Wegens gevaar voor het breken van potten, uitbreken van ziektes en dode of gewonde dieren bij aankomst, mochten de slachthuisen uiteindelijk niet meer aangruend worden per trein of boot. Daarom kon niet nog gebouwd worden per slachthuisen, iets wat tegenwoordig verkeersproblemen zou veroorzaken. Mede door de interne verhuisbewegingen die nodig waren om aan site hygiënische eisen te voldoen, werd het slachthuis in 2000 gesloten.

Tegenwoordig ligt de site er leeg en vervallen bij. Initieel vleesverwerkende bedrijven aan de rand, Die Antwerp Roaring Academy, een paar tweedehandszaken en de Rindhoel zorgen hier en daar voor nog wat bedrijvigheid. Deze activiteit is echter niet voldoende aanwezig om zwerfzwerf en verlatenheid weg te houden. Een doordachte herontwikkeling van de site zou een krachtige impuls vormen voor de hele wijk.

18

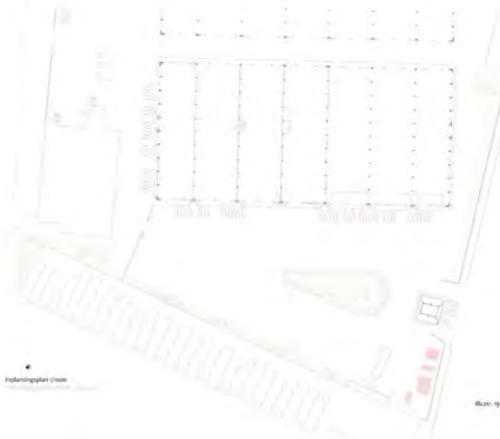
**ONDERZOEK
DE SLACHTHUISITE**
GESCHIEDKUNDIG

GESCHIEDKUNDIG HET SLACHTHUIS VOÛR 1877 - MICHEL DENIS



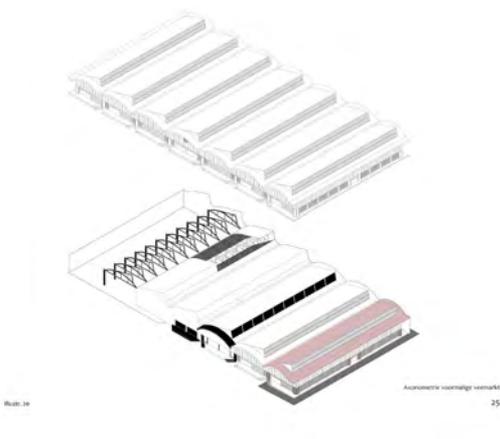
Bladz. 3

19



Inplantingsplan 1900

Bladz. 4



Aanbouw voormalige veemarkt

25

crematorium hofheide

onderzoek:

Uitgevoerd van februari 2015
tot mei juni 2016

uitgevoerd door
Jade Cobben
Astrid Eyskens
Laura Gijs
Laurence Larose,
studenten
UAntwerpen
Masteropleiding in
de architectuur

met als begeleider
Dirk Van Oosterwyck
Universiteit
Antwerpen



Opdracht omschrijving

In het kader van het vakgebied architectuur, maken wij in ons laatste jaar van onze masteropleiding kennis met onderzoek. Binnen dit studiedomein leren we op een professionele manier omgaan met informele en de verwerking ervan. Het onderzoek, dat wij als studenten voeren sluit aan bij bestaande onderzoeken, gevoerd door docenten aan de faculteit Ontwerpwetenschappen. Dirk Van Oosterwyck leidt in het kader van zijn doctoraat een studie naar 'de poetics of space'. Een onderzoekstijl die meteen doet denken aan het gelijknamige boek van Gaston Bachelard waarin de schrijver architectuur op een zeer secure en tactiele manier omschrijft.

De keuze voor de onderzoeksgroep lag bij ons. Aangezien deze titel ons meteen aansprak bestond er weinig twiifel over de beslissing om mee te werken aan Dirk's onderzoek rond de ervaring en perceptie van architectuur.

Concreet wilde dit zeggen dat wij in groepen van 4 studenten onderzoek zouden doen naar de ervaring van sacrale ruimten, specifiek: crematoria in Vlaanderen. Het doel was een manier te vinden om onze zintuiglijke ervaring van architectuur weer te geven in een tekening en/of andere media (zoals een excel-sheet) om zodoende informatie, die normaliter onbesproken blijft, ook te delen met anderen die het gebouw nog niet bezocht hebben. Een extra dimensie als het ware toevoegen aan de conventionele manier van architecturaal tekenen.

Hierbij werd ons gevraagd om op een eerder onconventionele manier de ruimtes te ervaren en vervolgens te beschrijven. Aan de hand van voice-recorders namen we nauwgezet alle gedachten die ons brein passeerden op in digital media. Deze manier van data verzamelen was ons ongekend, bleek voor de ene al wat moeilijker dan voor de andere, maar bracht interessante data op. Als tweede stap in het onderzoek schreven we alle voice-recorders uit, zwart op wit, zonder enige selectie door te voeren. Dit deden we zowel met onze eigen spraakfragmenten, als met de fragmenten van broers, zussen, en medestudenten.

Crematorium Hofheide

programma:

plechtigheden: rooms katholiek vs vrijzinnig humanistisch
ruimtegebruik: broodjes, diner, receptie, warme maaltijd, koud buffet, combo, 4uurtje, lunch, brunch, ontbijt
transactie_hofheide: kleine kaart, hoofdgerechten, friese room, dranken, suggesties
crematie: documenten archiver, laatste wil, voorschriften kist, statistieken, cr belgie, cr kinderen
asbestemming: reglement begraafplaats, aanvraag corectie, decreet lijkbazorging
crematatorium: ontwerpteam en ontwerp

De visie achter het ontwerp

To bring nature, man and architecture together in a higher unity (Ludwig Mies van der Rohe)
Dit project wil zich ruimtelijk en visueel vasthechten in het oneindige landschap en er tegelijk structuur aan geven.

1. Alles onder één dak (2 in 1)

De drie (voor het publiek) toegankelijke onderdelen, het crematorium + administratie, het crematie deel en de herenafdeling worden los van elkaar maar onder één dak aangeboden. Enerzijds maakt deze keuze een duidelijk en helder circulatiepatroon voor bezoekers en personeel mogelijk, anderzijds heeft een aansluiting van de onderdelen alleen maar functionele voordelen wat de uitbating betreft.

2. Monumentaliteit, intimiteit

Het gebouw bevindt zich op een verdiepte sokkel die middelen de moerasige vlakte wordt aangebracht. Het monumentale uit zich in het architecturaal expressief volume geplaatst in het landschap met een symbolische uitdruktingskracht.

De verschillende delen worden samengevoerd door een lichtdoorlatende luifel die als een stulp over het gebouw op 2 meter boven het terrein wordt aangebracht.

- de sokkel en stulp als ruggengraat en ordenend geheel
- de sokkel en luifel als een circulatie naar de verschillende delen
- de sokkel en luifel als overgangzone
- de sokkel en stulp als een sarcofaag

Onderzoek
Dirk van Oosterwijk

Tom Cant - Niels Garmans - Andreas Pörry - Jerik Toes
Universiteit Antwerpen 2015 - 2016



Crematorium 'uitzicht', Kortrijk
Ambassadeur Baertlaan 5, B-8500, Kortrijk
Souo de Moura, Arquitectos S.A.
Jaar van realisatie: 2011

Onderzoek
Dirk van Oosterwijk

Tom Cant - Niels Garmans - Andreas Pörry - Jerik Toes
Universiteit Antwerpen 2015 - 2016

VOORONDERZOEK

Een eerste fase van het onderzoek betreft een inzicht krijgen in het desbetreffende crematorium. Dit gebeurt door middel van plannateriaal dat gevonden werd. Ook artikels zullen gelezen worden om inzichten te krijgen in het ontwerp.

Foto's van het gebouw zullen ons helpen om een eerste beeld te krijgen van hoe het gebouw zich manifesteert in de gebouwde werkelijkheid. Hier komen we reeds een eerste keer in contact met gevoelens en belevingen die het gebouw zullen opwekken. Maar aan de hand van deze zaken is het onmogelijk om een volledig beeld te krijgen van het crematorium. Deze fase wordt dus slechts als een kleine opstap gezien, richting de een van de belangrijkste stappen van het onderzoek. Het daadwerkelijke bezoek.



Stede



Stede

Onderzoek
Dirk van Oosterwijk

Tom Cant - Niels Garmans - Andreas Pörry - Jerik Toes
Universiteit Antwerpen 2015 - 2016

INLEIDING

Als architect bouwen we meestal in eerste instantie voor het individu. We ontwerpen ruimtes en plaatsen die hun representatie kennen in de levenswijze van deze gebruikers. Hierbij is gevoel en beleving een belangrijk schakel die zeker en vast niet uit het oog verloren mag worden. Het is zo dat begrippen als gevoel en beleving zeer vaag van aard zijn en dat we hieraan geen eenduidige betekenissen kunnen toeschrijven. Toch is het zo dat architectuur in het menselijk van de gevallen ontwikkeld wordt met gevoel en beleving als uitgangspunt. Net omdat deze begrippen zo vaag van aard zijn, blijft het zeer moeilijk om deze voor te stellen in planmatige tekeningen. De enige momenten dat we er mee in aanraking komen is wanneer we onself ontfosteren met de werkelijkheid. Een uitnodiging, een 'I mood-up...'. Samen om helpen in het begrijpen en ontvoelen wat bepaalde beslissingen in een ontwerpproces als gevoel hebben voor het uiteindelijk eindproduct. Dit terwijl deze media met de belangrijkste tool is waar de architect over beschikt:

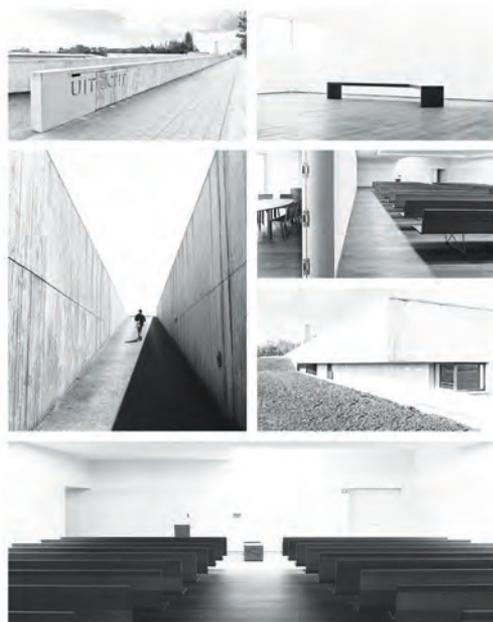
"Architectuur begrijpen?", een onderzoek gevoerd door Dirk van Oosterwijk, is er nu gericht om manier te vinden waarop gevoelswaarde binnen architectonische ruimte omgezet kan worden naar een representatieve tekening. Hierbij is het van belang dat wordt nagegaan welke elementen en tools noodzakelijk zijn. Hoe registreren we gevoel? Bestaat er een manier om voorbij de boter architectonische en mathematische tekeningen te gaan, naar iets waarin we kunnen affeëren wat ruimte doet waarden gemeenschappelijk, de beleving van het indruk? Welke soort tekeningen geeft dat het beste weer?

"Understanding architecture does not require specialized knowledge or skills, but rather begins in the everyday experiences of individuals"
Pallamra 2012

Een noodzakelijke stap in het vinden van een herkenbare methode, die tot een antwoord kan leiden op het vraagstuk, is simpel en het bezoeken van de desbetreffende ruimte en het registreren van gevoel. Dit registreren kan zeer letterlijk genomen worden. Tijdens het bezoek aan het crematorium zal alles wat waargenomen wordt, en de gevoelens die daarbij vrijkomen, opgenomen worden met een voice-recorder. Deze spraakberichten zullen nadien digitaal geïmporteerd worden waarna de registraties een tekstuele analyse zullen ondergaan. Op deze manier kunnen we bepalen welke elementen een invloed hebben op het begrip 'gevoel'. Overeenkomsten en verschillen worden uit de analyse geïnterpreteerd. Belangrijke punten die we terugvinden worden uiteindelijk omgezet in een tekening die een representatie wordt te zijn van het gevoel dat werd waargenomen.

Onderzoek
Dirk van Oosterwijk

Tom Cant - Niels Garmans - Andreas Pörry - Jerik Toes
Universiteit Antwerpen 2015 - 2016





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Ontwerpen in de bacheloropleiding architectuur

Het opleidingsonderdeel *Initiatie Ontwerp* vormt het eerste blok van de leerlijn *Ontwerpen in de bacheloropleiding architectuur*. Door het maken van ontwerp-opleidingen, reflectie, en analyse wordt binnen deze leerlijn het begrip en waarom van architectonisch ontwerp ontdekt. Vanaf het tweede semester zijn de ontwerpstudio's thematisch georganiseerd. De ontwerpopleidingen focussen op een essentieel aspect van architectuur: wonen, cultuur, omgeving, en constructie. Het eerste semester biedt een initiatie in wat onderliggend is aan die thema's. De basisprincipes van het ontwerpen van architectuur worden geëxploreerd.

Schematische weergave van de leerlijn Ontwerpen in de bacheloropleiding architectuur

1-Ba-AR	Initiatie ontwerp	Basisprincipes
	architectuur & wonen	architectuur maakt deel uit van een leefomgeving
2-Ba-AR	architectuur & cultuur	architectuur maakt deel uit van een socio-culturele omgeving
	architectuur & omgeving	architectuur maakt deel uit van een fysieke omgeving
3-Ba-AR	architectuur & constructie	architectuur maakt deel uit van een gebouwd omgeving
	bachelorproef	synthese van al het bovenstaande

