BREAKING BOUNDARIES
VERTICAL CONSUMER CIRCULATION INSIDE A SHOPPING MALL

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BREAKING BOUNDARIES (REPORT)

‘Vertical consumer circulation inside a shopping mall’

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Name: Ben de Weerd
Address: Slotboomstraat 14b3, 3082 GP ROTTERDAM
Email: B.deWeerd-1@student.tudelft.nl
Student number: 1539612
Phone: +31 649300495

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University: Delft University of Technology
Department: Real Estate & Housing
Graduation lab: Retail & Leisure

Graduation mentors
1st mentor: Dr. C. (Clarine) J. van Oel
Email: C.J.vanOel@tudelft.nl
2nd mentor: Dr. ir. D. (Dion) C. Kooijman
Email: D.C.Kooijman@tudelft.nl
Representative: Ing.P. de Jong

Graduation company: Multi Development
Address: Hanzeweg 16, 2803 MC GOUDA
Postal box: 874, 2800AW, GOUDA
Phone: +31 182 690900
Website: www.multi.eu
Mentor: Drs. Ing. A. (Arno) G.N. Ruigrok
Email: aruigrok@multi-development.com

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PREFACE

This report presents my Master Thesis for the graduation project in the Retail & Leisure lab, Master Real Estate & Housing at the Technical University of Delft.

I want to thank Arno Ruigrok and Multi-Development for the opportunity to graduate at their company. I also want to thank my mentor Clarine van Oel and Dion Kooijman for guiding me through this graduation project. I enjoyed working together and am very grateful for the support and motivation I got from Clarine when needed. This motivated me all the way and brought me to this report so far.

I also want to thank D. Piso and my father for the support I got when constructing the technical part.

Last but not least, I want to thank both my parents for the support and for making this possible.
SUMMARY (DUTCH)

Aanleiding onderzoek: Door toenemende grondschaarste in Binnenstedelijke winkelgebieden in Nederland worden ontwikkelaars geformeerd om verticale ontwikkelingen toe te passen met meerdere winkellagen, om zodoende een project financieel haalbaar te maken. Alhoewel verticale ontwikkelingen vanuit dit oogpunt worden geforceerd, blijken de bovenste winkellagen in de realiteit vaak slecht te functioneren. Een kwart van de winkels in Magna Plaza Amsterdam staat al leeg en nu dreigt een verdere leegloop. Alleen al op de tweede verdieping van het voormalige postkantoor achter het Paleis op de Dam staan zes winkels leeg en op de andere verdiepingen nog eens drie (Van der Beek & Groothengel, 2010).

Deze leegstand wordt deels toegewezen aan een significant tekort van verticale circulatie (In: NRW, de Veranderende stad, 2006). De spanning tussen het forceren van verticale retailontwikkelingen en het slecht functioneren van deze bovenste winkellagen, verlangt een beter inzicht in de redenering van de consument om al dan niet verticaal te circuleren en deze winkelagen te bezoeken. Vanuit deze optiek is de volgende onderzoeksvraag opgesteld:

‘Welke karakteristieken van de directe omgeving in een winkelcentra hebben effect op de voorkeur van consumenten om verticaal te circuleren, en in hoeverre is deze voorkeur beïnvloed door persoonlijke karakteristieken?’

Omgevingspsychologie, een theoretische achtergrond: Om de relatie tussen de omgeving en consument te kunnen begrijpen, zijn kennis en inzichten uit het vakgebied omgevingspsychologie toegepast. Als onderlegger voor het theoretisch framework, is het S-O-R model gebruikt. De omgeving (Stimuli) activeert een bepaald intern proces bij de consument (Organisme), van waaruit deze uiteindelijk een bepaalde respons zal geven (figuur 1).

Figuur 1: S-O-R model. Source: after Spangenberg et al., 1996

De retailontwikkelaar tracht om met de retailomgeving (stimuli) een bepaald emotioneel gedrag bij de consument te ontlokken, wat ertoe dient te leiden om meer tijd en geld in een winkelcentrum te besteden, en om terug te komen.

Onderzoek heeft geleid tot de veronderstelling dat de emotie plezier leidt tot extra tijdbesteding in een winkelcentrum (Massara,2009). Om een bepaald plezier op te wekken bij consumenten, moet er een balans in de hoeveelheid stimuli zijn, waardoor consumenten niet verveeld raken of overstressed. Om deze balans te creëren, sluit dit onderzoek aan bij twee emotionele uitgangspunten van de consument; ‘Comfort of the known’ en ‘Excitement of the New’. Waar ‘Comfort of the Known’ is gericht op het bieden van oriëntatie en comfort, waardoor consumenten eenvoudig zijn producten kunnen vinden en aanschaffen, richt ‘Excitement of the new’ zich op de verrassing en beleving die het winkelen met zich mee dient te brengen.

Case-studies: Vanuit case-studies en onderbouwd door expert interviews en literatuur, blijken deze emotionele effecten ook gerelateerd te kunnen
worden aan de preferenties van consumenten voor verschillende omgevingen met verschillende karakteristieken.

De functionele karakteristieken van een winkelcentrum zijn gericht op het bieden van winkelgerelateerde activiteiten met de intentie producten aan te schaffen. Hierin komt vooral ‘Comfort of the Known’ tot zijn recht, doordat de oriëntatie wordt geoptimaliseerd en de moeite die een consument moet doen om een product aan te schaffen, wordt geminimaliseerd. De consument heeft doorgaans een meer taakgericht doel en hij ervaart plezier wanneer het product is aangeschaft.

De karakteristieken die zich richten op de ambiance van een winkelcentrum zijn meer gefocust op het bieden van beleving en verrassing aan de consument. Het winkelen op zich geeft al voldoende plezier, waarbij het niet uitmaakt of een product wordt aangeschaft of niet.

**Methodologie:** Om deze omgevingskarakteristieken te testen aan de perceptie van de consument, zijn vignetten gebruikt. Vignetten vragen de consument om een keuze te maken inzake verticaal circuleren op basis van de omgeving. Binnen deze omgeving zijn 12 attribuutniveaus toegepast, gerelateerd aan de functionele karakteristieken, esthetische en atmosferische karakteristieken. Door de systematische variatie van de attributen zien de omgevingen er telkens totaal anders uit (figuur 2-3). In plaats van 2d beelden, is in dit onderzoek een virtuele 3d tour gebruikt, waarbij consumenten op 3 verdiepingen rondkijken, en op basis van hun beleving een keuze maken voor de omgeving die naar hun mening verticale circulatie het meest stimuleert.

**Resultaten:** Visuele zichtlijnen, de aanwezigheid van daglicht van boven en het bieden van meerdere elevatiepunten blijkt voor de consument van primair belang te zijn om vanaf de begane grond de keuze te maken om verticaal te circuleren of niet. Consumenten lijken een voorkeur te hebben voor een omgeving die sterk appelleert aan wat eerder als ‘Comfort of the Known’ is omgeschreven. Anderzijds prefereren consumenten leisure activiteiten, variatie in materialen/kleuren en vormen van gebouwen, crowding en open floorplans als voorkeur voor een attractieve bovenste verdieping. Deze aspecten sluiten goed aan bij ‘Excitement of the new’.

**Conclusie:** Naar aanleiding van de resultaten, zouden winkelcentra zich voor het verticaal circuleren op de begane grond moeten richten op de functionele aspecten die het mogelijk maken om te oriënteren en de aandacht te richten op een bepaalde bestemming op hogergelegen verdiepingen. Eenmaal op een bovenste verdieping aan gekomen, worden de esthetische en atmosferische karakteristieken van een winkelcentrum meer belangrijk voor de attractiviteit en is het van belang de consument vast te houden.
ABSTRACT

Inner-city retail developments in the Netherlands are subjective to continuous change. Due to ground scarcity and financial feasibility, shopping malls are forced to integrate and extend vertically, developing retail over several layers. In practice, these multiple layered shopping malls in the Netherlands are coping with poor functioning upper floors, which is the result of an inadequate numbers of passersby. As inner-city developments are forced to extend vertically based due to financial and ground restrictions, while these upper floors do not function well based on the number of passersby, developers have a growing urge of knowledge about how to stimulate consumers to vertically circulate, visiting all retail layers of the shopping mall. From this point of view, a central research question was envisioned.

Which characteristics of the encountered environment in a shopping mall do affect the preferences for vertical circulation of consumers, and to what extent are their preferences for vertical circulation influenced by their personal characteristics?

Environmental psychology, a theoretical background

Understanding the relation between consumer behaviour and environment, desires insight in the field of knowledge related to environmental psychology. Environmental stimuli (S) activate an internal process (O), in order to create a response (R).

Stimuli: the environmental stimuli are the environment consumer’s encounter while shopping. This indicates retail designers and developers might manipulate a certain response by changing the encountered environment.

Organism: every internal process of a consumer perceiving an environment is different, as it is related to his personal circumstances, situational factors and psychological factors. While acknowledging the individuality of consumers’ internal processes, this study assumes that differences between (groups of) consumers are larger than within consumers, and this study therefore focuses on the ‘mainstream’ or ‘average’ consumer, as well as on groups of consumers.

Response: an actual response could be to vertically circulate or not. The actual response is based on consumer’s experience, formed by the stimuli and organism, mentioned before. Circulation patterns often performed by consumers are listed below (figure 4).

Figure 4: Circulation patterns consumers. Source: after Bitgood, 2009
Consumers do not deviate easily from the main path and their pre-set route. This shows economy of movement is leading, in which consumers perform the least amount of effort to reach a certain destination. Consumers are only lead away from this principle, if attracted enough by the environment.

**Emotion**

Although retail developers try to influence consumers response to increase retail profits, little attention is given to the way consumers experience an environment and respond to it. The retail environment holds several environmental cues and aims to influence consumers in an emotional way to spend more time and more money, and to come back again. Various researches indicated that increased levels of pleasure encourage consumers to spend more time in shopping malls (Massara, 2009). To increase pleasure, there must be sufficient stimulation from the encountered environment not to feel bored, whereas too much stimulation would stresses out consumers. A proper balance would be such that both consumers who feel pleasant with comfort of the known and consumers preferring excitement of the new (Gianotten, 2008; J. Sinke) are satisfied. Comfort of the known is focused on the ease for consumers to shop, whereas excitement of the new is more related to bringing a new experience, triggering a certain amount of excitement and contributes to the idea of shopping being an experience.

**Retail design characteristics**

In a retail environment one could distinguish characteristics about whether or not a shopping mall functions (functional characteristics) from the looks and feels of a shopping mall (atmospherics and aesthetics), shown in table 1.

![Table 1: Retail design characteristics. Source: Katelijn et al.](image)

Besides accessibility of the shopping mall, functional characteristics seem to dominate over the importance of atmosphere and aesthetics when it comes to their effect on consumer behaviour.

However, it might well be that atmosphere becomes the more and more important for inner-cities, as emotion plays a moderating role in shopping over the last decades.

For the case studies the emphasis will be on the space-related characteristics addressing ‘comfort of the known’ and ‘excitement of the new’. Several relations have been identified, showing different environments for different activities.
‘How a shopping mall functions’

Functional aspects seem to focus more on shopping-related activities as the intention of a shopping mall is to shop and buy. These shopping-related activities show a relation with ‘Comfort of the known’, in which the consumer knows his shopping trip is a success, no matter what happens. Orientation is maximized and performed effort is minimized, using strong visual lines and many elevation points to vertically circulate. Consumers can directly set visual destinations within the shopping mall and can walk within a straight line towards these destinations.

‘How a shopping mall looks and feels’

Atmospherics and Aesthetics of a shopping mall have a strong relation with leisure-activities, bringing more attractiveness inside a shopping mall. These leisure-related activities show a strong relation with ‘Excitement of the new’. Whereas functional aspects are focused on shopping and buying, the leisure related activities are focused on enjoy, stay and relax. These strong differences are also presented within the environment of leisure-related activities. While comfort of the known focuses on orientation and the ease of consumers to shop, excitement of the new brings new surprises and translates shopping into an experience by itself.

Regarding the studied cases, it seems that all cases varied in whether they emphasized ‘Comfort of the known’ or ‘Excitement of the new’ and that the assignment is as of how to find a proper balance between these two. This is complicated by that the kind of features that are considered positive for ‘comfort of the known’ are in turn low valued in achieving ‘excitement of the new’.

Vignette method

To relate to the different type of design attributes found in literature, expert interviews and case-studies, vignettes are used.

The vignette represents the retail design in which the chosen retail design attributes (aspects) constantly vary per vignette. By systematic variation of these attributes distinct retail environments are created, providing insight into the partial benefit of a certain attribute level. To compose the different environments, 12 attributes related to the functional aspects, aesthetics and atmospherics are designed, using the case-studies as precedents (table 2).

<table>
<thead>
<tr>
<th>Main attribute</th>
<th>Attribute level 1</th>
<th>Attribute level 2</th>
<th>Attribute level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daylight</td>
<td>No daylight entrance</td>
<td>Daylight entrance</td>
<td></td>
</tr>
<tr>
<td>Crowding</td>
<td>Crowding upper floor</td>
<td>Crowding ground floor</td>
<td></td>
</tr>
<tr>
<td>Human scale</td>
<td>Human scale</td>
<td>No human scale</td>
<td></td>
</tr>
<tr>
<td>Visual lines</td>
<td>Visual lines</td>
<td>No visual lines</td>
<td></td>
</tr>
<tr>
<td>Alternatives</td>
<td>No alternatives</td>
<td>Alternatives</td>
<td></td>
</tr>
<tr>
<td>Art object</td>
<td>Art object</td>
<td>No Art object</td>
<td></td>
</tr>
<tr>
<td>Spatial form</td>
<td>Orthogonal</td>
<td>Organic</td>
<td></td>
</tr>
<tr>
<td>Signing</td>
<td>Theme signing</td>
<td>Store signing</td>
<td></td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Vertical parcelation</td>
<td>No vertical parcelation</td>
<td></td>
</tr>
<tr>
<td>Materials/colors</td>
<td>Cold</td>
<td>Warm</td>
<td>Gradient</td>
</tr>
<tr>
<td>Type of stairway</td>
<td>Express</td>
<td>Single</td>
<td>Double</td>
</tr>
<tr>
<td>Anchor upper floor</td>
<td>Leisure</td>
<td>Media</td>
<td>Fashion</td>
</tr>
</tbody>
</table>

Table 2: Design attributes. Source: Own
From an example of 2d vignettes (Figure 5- Figure 6) it appears that the two vignettes have different attribute levels. Combining these aspects using a standard ‘background’ creates a totally different environment.

Instead of 2d, 3d vignettes were used, creating panoramic virtual tours, in which consumers encounter the environment in an inter-active way, visiting all three floors. As vertical circulation is more dynamic than static and has a strong relation between several floors, this type of methodology seems to be most appropriate.

The vignettes were included in a survey. That survey made use of an interceptive approach, in which consumers were asked to participate in a survey during their visit to Alexandrium shopping mall. Within six days (16-12-2010 / 21-12-2010), 226 valid respondents were collected within the shopping mall Alexandrium, making use of several laptops.

Results

To identify the preferred environment for vertical circulation, two choice experiments show significant relations between vertical circulation and the encountered environment.

Choice experiment 2 (DCA2): Of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

From the ranking of importance of attributes related to the preferred environment, it seems that the ground floor is considered attractive and stimulates to go upstairs, if it supports the ease consumers can orientate and circulate. One might say that the ground floor needs to address the ‘comfort of the known’ with strong visual lines, daylight entrance and multiple elevation points (table 3).

<table>
<thead>
<tr>
<th>DCA 2: In which shopping mall do you feel most invited by the ground floor to visit the upper floor?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 80% Visual lines</td>
</tr>
<tr>
<td>2. Daylight entrance from roof</td>
</tr>
<tr>
<td>3. Multiple elevation points</td>
</tr>
<tr>
<td>4. Presence of art</td>
</tr>
<tr>
<td>5. Warm Materials/colors</td>
</tr>
</tbody>
</table>

Table 3: Rank of importance attributes DCA 2

Choice experiment 3 (DCA3): Of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

In choice experiment 3 the emphasis was on the upper floor. There the outcome seems to strongly emphasize leisure-activities and the results seems to focus on aspects referred to as ‘excitement of the new’. This compares rather well to results from the case studies (table 4).
DCA 3: In which shopping mall, the upper floor attracts you the most?

| 1. Anchor Gastro Boulevard          | 2. Daylight entrance from roof |
| 3. Vertical parcellation of individual facades | 4. Crowding upper floor |
| 5. Several alternatives            | 6. Gradient of materials/colors |

**EXCITEMENT OF THE NEW**

This could indicate shopping malls should address comfort of the known on the ground floor to stimulate consumers to vertical circulate. An environment related to Excitement of the new should be addressed on the upper floors to let consumers stay. It is thought that a stimulation of vertical circulation could lead to additional time spent inside a shopping mall, affecting retail profits. To address this, further research should be performed.

**Recommendations**

The recommendations put forward in this research to stimulate consumers to vertically circulate in future retail development, are:

**VISUAL LINES**: Of all design characteristics, visual lines are most important for consumers in order to vertically circulate or not. Consumers prefer to have a good visual connection with their destination and if not, they are likely to avoid vertical circulation. Visual lines should be primary in the future design of inner-city retail developments, opening up towards above and providing a strong visual connection with destinations.

**DAYLIGHT**: Consumers walk towards daylight and if not present, consumers are likely to feel like they are shopping on the upper floor in a closed box. A fully open glass roof creates a positive feeling and impresses as walking outside in a shopping street. It has been suggested (Van den Berg, 2010) that consumers feel less forced and are less aware of shopping then.

**MULTIPLE ELEVATION POINTS**: Consumers prefer the presence of multiple elevation points, in which they do not have to walk a long distance and can easily enter or exit a shopping mall from every position inside the shopping mall. It is important for future developments like Forum Rotterdam to create multiple elevation points with a strong visual connection between these elevation points.

**ART**: Art in form of artificial in-motion lighting makes it exciting to vertically circulate. Former developments strongly suggest that these types of art create a different experience, attracting the eye and pulling consumers towards above. Future retail developments should implement art, but one should always keep in mind not to block off visual lines towards destinations and/or daylight entrance.

**MATERIALS/COLORS**: Use of warm materials/color is preferred. As consumers in the Netherlands are not confronted with many multiple layered shopping malls within the inner-cities, they are likely to refer to inner-city street profiles. To adapt to its environment, future developments should make use of warm colors used in the inner-city street profiles.

---

**Table 4: Rank of importance attributes DCA 2**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anchor Gastro Boulevard</td>
</tr>
<tr>
<td>2</td>
<td>Daylight entrance from roof</td>
</tr>
<tr>
<td>3</td>
<td>Vertical parcellation of individual facades</td>
</tr>
<tr>
<td>4</td>
<td>Crowding upper floor</td>
</tr>
<tr>
<td>5</td>
<td>Several alternatives</td>
</tr>
<tr>
<td>6</td>
<td>Gradient of materials/colors</td>
</tr>
</tbody>
</table>

---

**EXCITEMENT OF THE NEW**

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1.1 INTRODUCTION

Affecting of consumer’s circulation behaviour inside shopping malls has long been the hallmark of the planned shopping mall.

‘If there is one golden rule of shopping mall design, it is that anchor stores, entry points, escalators and suchlike should be so located as to stimulate shopper circulation within the complex and thereby maximize shoppers exposure to the temptations of the centre and the blandishments of its occupants’ (Brown, 1991).

Despite the fundamental importance of manipulating consumers to vertically circulate, developers and designers give insufficient thought to the circulation patterns of consumers inside shopping malls (Multi, 2010; Brown, 1991). The Dutch council of shopping malls (Gianotten and Haringsma, 2006) highlight this problem in the current retail market:

‘In most circumstances developing multiple layered shopping malls has resulted in less attractive upper floors, resulting in a significant shortage of vertical consumer’s circulation’ (op.cit.).

To improve consumer circulation, insight in decision-making process of consumers to circulate or not is needed to affect the retail profits in future retail designs.

1.2 PROBLEM ANALYSIS

Inner-city (integrated) developments

Inner-city retail development is subjective to continuous change.

Due to ground scarcity in inner cities, shopping malls are forced to integrate and vertically extend. Internal integration is achieved by creating multiple use buildings. External integration is done by fitting retail into an existing environment. This enforcement of integration is a consequence of the current market. The land prices of the small sized plots have high price levels, making it unfeasible to develop one layered shopping malls on these plots.

Forum Rotterdam in Rotterdam is an example of an inner-city retail development Figure 1. The project’s feasibility depends on the lettable floor area to develop and cannot be achieved when developing one layer. It is forced to position a multifunctional program into several layers, including parking facilities, leisure and housing.

Figure 1 Forum Rotterdam, Rotterdam
Source: Multi Development
**Vertical consumer circulation**

Since maximizing circulation leads to maximized retail profits (Koolhaas, 2001), and inner-city developments are forced to integrate and vertically extend, vertical consumer circulation becomes a priority in future retail design. This priority is forced up by the market as well. Upper floors of several shopping malls do not function well, resulting in lower rent levels and more vacancy on upper floors. This directly has a negative effect on retail profits.

Magna Plaza in Amsterdam is an example in which upper floors do not properly function. In total, 25% of the lettable floor area on the upper floors is vacant, which is likely caused by a shortage of passers-by (Van der Beek and Groothengel, 2010). One might conclude that there is a tension between the necessity and enforcement to develop vertical malls within inner cities and the poorer performance of upper floors of these malls, partly resulting from a lack of vertical consumer circulation.

**Knowledge gap: Why do consumers (not) vertically circulate?**

The tension between the necessities to develop multiple layered shopping malls, and the presumed poorer performance of the upper floors hints at the presence of a current knowledge gap. Insight in the characteristics of shopping mall environments that stimulate consumers to circulate is needed to improve retail profits of future retail designs.

To date, research into consumer preferences of retail design mainly focuses on selected, such as colour, lightning, and signing (Belizzi et al., 1992; Wakefield et al. 1998). Generally, quantitative studies focused on individual design characteristics, not on a bundle of characteristics, although it is widely acknowledged that consumers’ preferences are influenced by their combined appearance in the shopping mall design. Furthermore, existing quantitative research do not address the design characteristics affecting vertical circulation behaviour of consumers. Indeed, consumer circulation has been described as the ‘dark continent’ of retail designs (Brown, 1991). This lack of research has been recognized in practice indeed, as put forward by Multi-Development (Ruigrok, 2010).

Since there is a growing urges to better understand the shopping mall environmental characteristics that influence consumer’s behaviour to vertically circulate or not, a research project was envisioned.
1.3 SOCIAL RELEVANCE

Due to ground scarcity and financial restrictions in inner cities, developers are forced to (re)design shopping malls with multiple floors. Yet, these vertical shopping malls do not seem to function very well. Retail figures show higher vacancy on upper floors, which is partly due to poor vertical circulation behaviour of consumers, as they will spend their money over there. It raises the question to what extent future retail design can stimulate the vertical circulation of consumers. In practice, ‘solutions’ have been already implemented, but these solutions were largely found by trial and error as scientific research is lacking. Such an approach brings in large costs, for retail developers as well as for retailers and likely third parties as well.

In view of the increasing pressure to design multiple layered shopping malls in inner cities, developers, retailers and investors have a growing urge for this kind of knowledge to become available as improved vertical circulation of consumers will contribute to maximizing retail profits in future developments.
1.4 OBJECTIVES
From the aforementioned problem analysis, the following research objectives were derived.

1.4.1 AIMS
To address the lack of knowledge regarding the retail design characteristics that stimulate consumers to vertically circulate, this research project aims to:

- Gain insight in what design characteristics affect consumers experience of the encountered environment inside a shopping mall and how it influences their vertical circulation behaviour. This insight is needed to advise developers how to optimize the vertical circulation patterns in future retail designs of shopping malls, maximizing retail profits across the entire shopping mall.
- Contribute to the body of knowledge within the field of consumer preferences in retail design, and particularly regarding retail design characteristics that stimulate vertical circulation behaviour inside a shopping mall.

1.4.2 CENTRAL RESEARCH QUESTION
Formulating the central research question, which the research project needs to answer

Which characteristics of the encountered environment in a shopping mall do affect the preferences for vertical circulation of consumers, and to what extent are their preferences for vertical circulation influenced by their personal characteristics?

1.5 RESEARCH QUESTIONS
Questions that need to be answered in order to give an answer to the central research question

- Which characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation are mentioned in literature?
- Which personal characteristics of consumers affecting consumer preferences for vertical circulation are mentioned in literature?
- What might be considered as important characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation?
- To what extent do consumers’ experiences of the encountered environment influence their preferences for vertical circulation, which is thought to indirectly affect retail profits at upper floors inside a shopping mall?
1.6 DEMARCATION

The demarcation creates a certain focus for a reliable outcome within the available time.

*External and internal consumer circulation*

The research project focuses on internal consumer circulation and does not include external consumer circulation. It therefore does not include the external environment like parking possibilities, accessibility by car or distance between home and shopping mall, as described by Gianotten (2008).

*Limitation of retail design characteristics*

In order to justify the selection of the retail design characteristics, selection criteria are used.

- It must be characteristics that can be operationalized in order to measure. Characteristics such as sense and temperature are hard to operationalize and are therefore discarded.
- The characteristics must be relevant to vertical circulation inside a shopping mall.
- There must be a clear identification of the characteristics mentioned in literature or the relevance of these characteristics might show from practice.

*Type of retail development*

According to Ruigrok (2010), there are 5 types of shopping malls:

- Convenience centre: Supermarket-based retail in neighbourhoods.
- Retail Park: goal-oriented shopping in the outskirts of the centre (living boulevards, etc.)
- Traffic retail: Retail on locations with other traffic motives (Schiphol, etc)
- Thematic retail: Factory outlet, etc.
- Inner-city (integrated) shopping mall with a relation with its existing environment and a variation of both fun, run and goal oriented shopping

The motive for this research is focused on the ground scarcity within inner-cities, forcing inner-city developments to extend vertically. This ground scarcity is less present within other type of developments. To give substantiated advice, this research will only focus on the inner-city (integrated) shopping malls.

*Critical mass*

The research project has a focus on shopping malls with at least 3 layers, excluding the double layered stores.

According to a study of Hel (1994), the critical mass per layer is set on 4.500-5000 m², making it the effort worth to vertically circulate.
1.7 CONCEPTUAL MODEL

**Stimulus**

Encountered environment
- Lay-out
- Routing
- Signing
- Spatial form
- Lighting
- Materials
- Colors

**Organism**

- Personal circumstances
  - Demographic
  - Lifestyle
  - Situational factors
- Social factors
  - Social influences
- Psychological factors
  - Motives & Perceptions
  - Attitudes
  - Personality

**Response**

External response
- Approach
- Avoidance

Subconscious process stimuli
- Conscious process stimuli

Consumer's experience

---

Figure 2 Conceptual model, after Jacoby, 2002.
Adapted by the author
The conceptual model is a simplified model of the renewed S-O-R framework as mentioned in literature (Jacoby, 2002). The model is used to look at the causal connection between certain environmental design characteristics (stimuli), how they are experienced (organism), and their influence on the circulation behaviour (response).

![Diagram](image)

Figure 3: 1= encountered environment, 2 = subconscious process stimuli, 3 = conscious process stimuli, 4 = Cognitive and experiential 'Store house', 5 = Subconscious internal response, 6 = Conscious internal response, 7 = External response. Source: after Jacoby, 2002.

1.7.1 STIMULUS SECTOR FACTORS

In Figure 3, sector 1 consists of a consumer’s encountered environment inside a shopping mall at a particular moment. The encountered environment consists of the retail design, sub classified into functional characteristics, aesthetical characteristics and atmospherics. Retail design factors in this scheme often have a conjoint effect on consumer perception. The consumer generally does not perceive single factors, but merely the resultant of several individual factors.

Sector 2 is about the processing of stimuli. A consumer is not always aware that he is stimulated by the encountered environment, part of the effect of the stimuli occurs un- or subconscious (Chartrand, 2008). When people frequently act in the same way in a particular situation, this way is often retrieved from memory when perceiving a particular situation. As an example, it could well be that consumers always walk to light, but they might be not aware that they are stimulated by the roof design to vertically circulate. Sector 2 also includes internal activated stimuli from the organism. This is often a biochemical reaction in their body. For example, if someone’s blood falls low in sugar, the consumer gets hungry.

Sector 3 is the consumer’s consciousness at the time they encounter the shopping mall environment. Consumers are aware that they are stimulated by the encountered environment. For example, consumers see a sign ‘Sales upstairs’ and are aware of perceiving it.

1.7.2 ORGANISM SECTOR FACTORS

The organism sector factors are all about how consumers experience certain stimuli of the encountered environment. Sector 2 has already been described as the unconscious process of incoming stimuli and internally activated stimuli. Sector 3 refers to the conscious processing of stimuli and internally activated stimuli.

Sector 4 includes the personal characteristics, psychological factors and social factors. These factors have an influence on how the consumer experiences the encountered environment.

Sector 5 is the conscious internal response. In this sector, emotions and moods are present. It also represents the PAD-model, according to which
consumers get a certain amount of pleasure, arousal or dominance while experiencing the environment.

Sector 6 is the unconscious internal response. Consumers are often unaware of their change in intentions and beliefs after experiencing the encountered environment. The internal responses overlap with the organism, because they are often stored in the long-term memory as prior experiences. For example, the next time consumers visit a shopping mall this prior experience could affect their response.

1.7.3 RESPONSE SECTOR FACTORS

Sector 4 and 5 are internal responses, which are not focused on the actual approach or avoidance. Sector 6 however, is the external response of the experience, including the eventually behavioural approach or avoidance. In the external response, consumers eventually respond by circulating vertically or not.
1.8 RESEARCH DESIGN

**ACTIVITIES**

**LITERATURE STUDY**
- Which characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation are mentioned in literature?
- Which personal characteristics of consumers affecting consumer preferences for vertical circulation are mentioned in literature?

**THEORETICAL FRAMEWORK**

**EXPERT INTERVIEWS CASE-STUDIES**

**ACTUAL CASE-STUDIES**
- What might be considered as important characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation?

**VIGNETS**
- To what extent do consumers’ experiences of the encountered environment influence their preferences for vertical circulation, which is thought to indirectly affect retail profits at upper floors inside a shopping mall?

**ADVICE AND RECOMMENDATIONS**

**REFLECTION AND CONCLUSIONS**

*Table 1: Research design
Source: own*
This reader explains the structure of the total report. It describes per chapter its content and relation to the other chapters.

**Chapter 2** entails on aspects drawn up from environmental psychology. It explains the underlying frameworks of consumer behaviour in relation to its encountered environment. This chapter describes background information of the conceptual model used in this research project. Chapter 2 analyzes the factors that influence consumers’ perception of an environment and the related responsive behaviour.

**Chapter 3** describes the retail environment encountered by consumers. The encountered environment forms the main focus of this research, as retail developers can manipulate the environment to change consumer’s response. Chapter 2 and 3 provide background information to the conceptual model, explaining the role of the retail environment relating this to how consumers perceive the retail environment and how they respond to it.

**Chapter 4** shows the relation between the encountered environment (chapter 3) and vertical circulation of consumers. In preparation to the case-studies, a combination of expert interviews related to the case-studies and literature has been used. Environmental characteristics which are likely to influence consumer’s experience and consumer’s vertical circulation behaviour are identified.

**Chapter 5** is a critical review of the environmental characteristics found to in literature and expert interviews (chapter 4), tested with the case-studies. The critical review is used to define attribute levels and to generate reference material (images), to be used in methodology (chapter 6) and design of the vignettes (chapter 7).

**Chapter 6** describes the methodology used to test the environmental characteristics found in literature and case-studies (chapter 4-5), to the actual response of the consumer on these design characteristics. Chapter 6 also defines the statistical model that was used to design the vignettes (chapter 7).

**Chapter 7** shows how the vignettes are designed based on the methodology (chapter 6). The actual vignettes are used in the survey (chapter 8) to define what kind of retail environment is preferred in order to stimulate vertical circulation behaviour of consumers.

**Chapter 8** describes the procedure and content of the survey, which is used in the questionnaire for consumers.

**Chapter 9** presents the results of the survey. It reports how different types of consumers perceive a retail environment, based on their personal characteristics, and to what extent this influences their vertical circulation behaviour.

**Chapter 10** provides an answer to the main research question of this research. It also advices and recommends retail developers about how they could use the results from this research to encourage vertical circulation in future developments. Finally, this chapter reflects on the methodology used and identifies recommendations for further research.
2 ENVIRONMENTAL PSYCHOLOGY
2.1 INTRODUCTION

Many theories state that consumer behaviour can be manipulated by the environment (Massara, 2009; Brown, 1991; Spangenberg et al., 1996).

Environmental psychology is described as the study of human behaviour in relation to the natural and built environment. (Van Dale, 2010). It addresses the cognitive approach, investigating the mental processes of consumers to understand what consumers perceive and/or think (process) and how they behave (outcome).

This chapter addresses the mental processes by trying to understand what consumer’s perceptions and thinking is based on and to what extent they eventually behave by engaging in vertical circulation behaviour.

2.2 UNDERLYING FRAMEWORKS

To understand the mental processes of what consumers perceive and think while circulating, the knowledge field of environmental psychology equips the researcher with several underlying frameworks. The underlying frameworks used in this field of knowledge explaining consumer behaviour, are the Stimulus Organism Response (SOR)-framework (Spangenberg, et al. 1996, Jacoby, 2002) and Pleasure Arousal Dominance (PAD)-model (Russel and Mehrabian, 1977; Massara, 2009).

SOR-framework

Spangenberg et al. (1996) noticed that environmental psychology draws upon the basic stimulus-organism-response model (Table 2). Environmental stimuli (S) activate an internal process (O), in order to create a response (R).

<table>
<thead>
<tr>
<th>STIMULUS</th>
<th>ORGANISM</th>
<th>RESPONSE</th>
</tr>
</thead>
</table>

Table 2: S-O-R framework
(after Spangenberg et al., 1996)
Environmental stimuli are encountered by the consumer at a specific moment. These stimuli not only include the retail design itself, but articles and prices can also activate an internal process (Jacoby, 2002). An internal mental process stems always from an interaction of the individual with environmental design characteristics (Jacoby, 2002; Massara, 2009).

Such a mental process includes both perception and the internal evaluation of this perception which is referred to as appraisal. This kind of mental processes can take place with or without awareness of the consumer. One might not be aware to circulate in a certain way through a shopping mall. The design of a shopping mall might unconsciously stimulate consumers to circulate in a specific way. Yet, the goal to circulate in a specific way might be pursued as if it was actively chosen (Chartrand, 2008). When a consumer perceives and appraises a particular environmental situation, these automatic cognitive processes are retrieved from consumer’s long-term memory. How a consumer perceives and appraises an environment, depends not only on perceptions and appraisals that are stored in long term memory, but also on social factors, personal circumstances and other psychological factors (Verhage, 2004). These characteristics will be further analyzed in paragraph 2.3.

After processing and appraising the stimuli, the consumer might respond in three ways: a behavioural, a non-verbal and a verbal response (Jacoby, 2002). A behavioural response is a certain approach or avoidance. Regarding vertical consumer behaviour, the behavioural response would be to vertically circulate or not. Verbal and non-verbal behaviour come along with changes in mood and emotions. For retailers and developers of shopping malls, it is important that people derive a certain emotion from shopping.

The emotional effects stemming from the perception of an environment are addressed in the PAD-model (Pleasure, Arousal, and Dominance). Emotions are important in understanding consumer behaviour, as they form the context where cognitive judgments, preferences or attitudes exist (Massara, 2009). There are two main kinds of emotional affects. Consumers may have a change of moods or they might show emotions. The difference between a mood swing and showing emotions is that emotions are stronger, more intense and shorter in period (Katelijn et al., 2002).

The PAD-model shows that emotional variables have an impact on consumer behaviour. It has been recognized that pleasure may predict consumers behavioural response such as extra time spent and unplanned purchasing (Massara, 2009). In turn, arousal is associated with under spending in unpleasant store environments. Russel and Mehrabian (1977) failed to demonstrate the involvement of dominance as a separate dimension of mood and discarded dominance as a factor in their theory of
how the shopping environment affects the emotional appraisal of these environments by consumers. The importance of a cognitive approach to retail design, is it addresses the effect that retail design has on a consumer’s mood and shows how certain retail design characteristics might increase pleasure and reduce arousal levels in consumers, and indirectly adds to increased shopping time by consumers feeling at ease and pleased.

As circulation of consumers is influenced by time spent in a shopping mall, it might be assumed that extra shopping time spent leads to more vertical circulation. In this context, consumers should experience feelings of pleasure and not too much aroused while shopping in order to stimulate vertical circulation.

*Additional research theories*

From literature it appears that not only retail design but also certain other human factors present in a shopping mall affects perceptive and cognitive appraisal of the shopping mall environment. According to Turley and Milliman (2000), crowding might be an example of a human factor interfering with the way the shopping mall is perceived and evaluated by the consumer. Furthermore, it is true that consumer behaviour can be influenced by environmental cues, for instance if they see a store they feel attracted to. However, it must be considered that a consumer is presented with alternatives and, facing various environmental cues, takes decisions and chooses at his own. In practice, individual consumers might choose not to circulate in an expected way as for some reasons they might perceive and appraise the environment in a different way. Every consumer creates a different response to a retail environment.

That is, understanding consumer choices needs a dynamic interaction between choice and environment (Chartrand, 2008).
2.3 CONSUMER’S PROCESS (ORGANISM)

To research consumer’s behaviour (outcome), insight in consumer’s process is necessary. This paragraph gives more insight in how a consumer’s cognitive process works and which factors influences this process. The content of this paragraph describes the background of the conceptual model and will be used to develop the questionnaire later on in this study.

As mentioned in paragraph 2.2, a consumer perception of the environment depends on a wide range of environmental characteristics. For a more descriptive insight on these characteristics influencing consumer’s thinking process, the scheme of Verhage (2004) is used. Verhage classifies the factors that influence the cognitive process of consumers into three categories: personal circumstances, psychological factors and social factors (Table 3).

<table>
<thead>
<tr>
<th>Personal circumstances</th>
<th>Psychological factors</th>
<th>Social factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic &amp; Lifestyle</td>
<td>Motives &amp; Perception</td>
<td>Culture</td>
</tr>
<tr>
<td></td>
<td>Personality</td>
<td>Social class</td>
</tr>
<tr>
<td></td>
<td>Attitudes</td>
<td>Family influences</td>
</tr>
</tbody>
</table>

*Table 3: Consumer’s mental process while shopping*

*Source: Verhage, 2004*

**Personal circumstances**

*Demographic & Lifestyle*

Someone’s age, gender, beliefs, profession and income all influence consumer behaviour.

*Gender*

Many researches relate gender to certain behaviours (Chebat, 2007; Babin et al. 1994). Female shoppers could differ from male shoppers in the sense that they enjoy shopping more than men do, and are also more cognitively alert when shopping.

*Lifestyle*

In the current field of knowledge, demographic characteristics like education, marital status constitute the lifestyle of a consumer. A consumer’s lifestyle influences his behaviour in three different ways (Verhage, 2004).

- The way time and money is spent (activities)
- What one considers important in his surroundings (interests)
- What one thinks of other people and surroundings (opinion)

These variables partly determine consumer behaviour and do also have effect on the circulation pattern of consumers.

**Situational characteristics**

Situational characteristics emphasizes on the impact of factors at a specific moment or time. For example, consumer are likely to have a
different circulation pattern when shopping for groceries within a time-frame of 15 minutes, compared to shopping for clothes within a time-frame of 3 hours. Overall, 5 situational characteristics could be distinguished (Verhage, 2004).

- Reason of purchase: would a consumer buy a gift or groceries?
- Physical surrounding: the encountered retail design.
- Social environment: The presence of other persons/friends/family.
- Dimension of time: time pressure as well as the moment of shopping (day or evening)
- Budget: what does a consumer has to spend?

The situational characteristics that can be manipulated by designers are the physical surrounding itself. For the current research project, these situational characteristics will be emphasized in the further project to recommend retail designers and developers as of how to design a shopping mall.

Psychological factors

Motive & Perception

According to Bolt (1995), three motives are important for consumers in shopping.

Perceptive motives: focus on comparing products in a certain ambiance. Often products like fashion and furniture are purchased based on perceptive motives.

Economic motives: focus on price friendly shopping. This refers among others to the relation of a product with price, distance between home and retailer, available time, accessibility and parking possibilities of the shopping mall or retailer. Often decisions where and what to purchase are strongly dependent on economic motives.

Personal motives: related to a consumer’s habits, perceived level of service and availability of social contacts. These personal motives are often more leisure oriented compared to other motives.

All these motives are likely to have a strong relation with vertical circulation of consumers. When economic motives are dominant, consumers prefer to take the least amount of effort, purchasing a product in order to leave the shopping mall right after the purchase. With prevailing perceptive motives, consumers are likely to spend more effort in order to compare products. Within inner-city retail developments, perceptive motives plays a moderating role (Bolt, 1995).

Personality

Someone’s personality is formed by former experiences and is based on psychological and behavioural characteristics making someone unique. As personality traits are quite stable over time and not to be affected by retail designers and project developers, these traits are not further addressed in this study.
**Attitudes**

An attitude is a consequent reaction to a certain product, based on a consumer’s former experiences. An attitude consists of three dimensions:

- Cognitive component: reaction based on knowledge and perception
- Affective component: reaction based on emotions and feelings
- Intentional component: based on actual behaviour in order to approach or avoid.

Within the current study, both cognitive and affective component will be investigated by showing respondents 3 movies of three distinct shopping mall designs and thereafter ask them to make a choice for any of these three designs. In this way, respondents perceive all three designs and acquire knowledge about these shopping malls. Then, they are asked to express their preference for either the three, so they have to include their emotions and feelings in their cognitive appraisal. Finally, they are asked to make an actual choice, rather than rating their preference as would be the case using the conjoint method (see chapter 6: Breidert et al., 2006). The advantage of using a discrete choice model is that in the end respondents have to choose and therefore need to weight different perceived characteristics of retail design and human factors (i.e. crowding) to end up with a choice (i.e. actual behaviour instead of an appraisal as with conjoint analysis).

**Social factors**

Culture emphasizes knowledge, principles, values and symbols which are learned in order to form certain behaviour (Van Dale, 2010).

When observing the position of an individual within culture, several sub classifications could be made. An individual is active within a family, which is active within a certain social class, which is located within a certain culture. The level of intimacy defines the level of influence. Culture is likely to have less influence compared to the social class and family (Figure 4). For this research, type of household is investigated in order to define the structure of the family. With questions like household and income, social class is addressed. To operationalize culture, the research will ask for respondent’s cultural background.

![Figure 4: Social influences](Source: Verhage, 2004)
Shopping values

Within the body of knowledge on consumer-based research, researchers often talk about shopping values, generally a combination of two classifications mentioned in this paragraph. In research two types of shopping values dominate literature (Jones, 2006; Babin et.al, 1994; Chebat, 2007; Massara, 2009). These two shopping values could be useful in describing consumer’s shopping rewards:

(1) A utilitarian outcome resulting from some type of conscious pursuit of an intended consequence and (2) an outcome related more to a spontaneous hedonic response (Babin et al., 1994).

‘To get something’ as opposed to doing it because ‘you love it’

Utilitarian Value: ‘Work, work, work’

Utilitarian shoppers are induced to focus on purchasing a product in an efficient manner, accomplishing their mission. This type of shopping value could be reflected with a ‘work’ mentality (Babin et al., 1994; Massara, 2009). Pleasure and satisfaction are only found when everything has been done, rather than enjoying the shopping experience itself (op.cit.). Utilitarian shoppers have a strong interaction with economy of movement (paragraph 2.4), wasting little time by performing the least amount of effort.

‘I get irritated when I can’t find what is needed . . . and I have to go to another store to find it’ (op.cit.).

Hedonic Value: ‘Shopping is fun’

Compared to utilitarian values, hedonic values are more subjective and personal and results more from fun and playfulness than from task completion (Holbrook and Hirschman, 1982). People shop to have fun, rather than shop to buy. Consumers are rewarded with an experience and can enjoy the benefits of a product without purchasing it. Searching for this experience seems to be far more important than the purchase of the products.

‘I enjoy looking around and imagining what one day I would actually have money to buy. Shopping is an adventure. When you can’t or don’t find [what you’re after] it’s o.k. because there are lots of other places to look’ (Babin et al., 1994).

Increased arousal, heightened involvement, perceived freedom, fantasy fulfillment and escape from reality could all indicate a hedonically valuable shopping experience (Babin et al., 1994).

Interaction of shopping values

It is acknowledged by several researches that a shopping experience could produce both utilitarian as hedonic experiences (Babin et al., 1994; Chebat, 2007; Massara, 2009). For example, consumers might find the product looked for at an exceptionally low price. The utilitarian value is received by the purchase, while hedonic pleasure is received from the exceptionally low price.
Table 4 (Babin et al., 1994) shows significant relations between hedonic and utilitarian shopping values.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Items</th>
<th>α</th>
<th>Hedonic value</th>
<th>Utilitarian value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experiential shopping</td>
<td>8</td>
<td>.86</td>
<td>.56***</td>
<td>-.02</td>
</tr>
<tr>
<td>motivations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsive buying scale</td>
<td>5</td>
<td>.76</td>
<td>.34***</td>
<td>-.08</td>
</tr>
<tr>
<td>Pleasure</td>
<td>6</td>
<td>.85</td>
<td>.47***</td>
<td>.31***</td>
</tr>
<tr>
<td>Arousal</td>
<td>5</td>
<td>.86</td>
<td>.61***</td>
<td>.26***</td>
</tr>
<tr>
<td>Bargain perceptions</td>
<td>1</td>
<td>...</td>
<td>.29***</td>
<td>.26***</td>
</tr>
<tr>
<td>Amount spent</td>
<td>1</td>
<td>...</td>
<td>.16**</td>
<td>.24***</td>
</tr>
<tr>
<td>Unplanned purchases</td>
<td>1</td>
<td>...</td>
<td>.18***</td>
<td>.09</td>
</tr>
<tr>
<td>Time pressure</td>
<td>3</td>
<td>.75</td>
<td>-.25***</td>
<td>-.23***</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>1</td>
<td>...</td>
<td>.51***</td>
<td>.53***</td>
</tr>
</tbody>
</table>

Table 4: Correlation estimates between shopping values.
Source: Babin et al., 1994.

While Hedonic shoppers do have more experiential shopping motives, they also receive a higher load of pleasure and arousal while shopping. The amount of money spent for hedonic shoppers is less important, while unplanned purchases are more often introduced. There is a certain form of compulsive buying, in which the product itself has no use, but purchasing it enhances pleasure.

Being time-efficient is important for both shopping values, having a direct effect on time spent in a shopping mall. Both utilitarian and hedonic shoppers receive pleasure, which leads to extra time and money spend within a shopping mall (Massara, 2009). How utilitarian and hedonic shoppers receive pleasure totally differs. For this reason, the distinction between these two shopping values should be considered when analyzing the results of the questionnaire, as both needs another environment to induce a certain amount of pleasure.
2.4 CONSUMER’S CIRCULATION PATTERN (RESPONSE)

When it comes to vertical circulation, how do consumers behave, after perceiving the environment? Circulation patterns are found among consumers, as people walk through the built environment in predictable ways, based on the habitual behaviour of consumers (Bitgood and Dukes, 2006).

**Turning right at choice points (and walking on the right side of pathways)**

William Whyte (1980) has stated that consumers prefer to walk right, as it often feels as the shortest route for consumers. Turning right at choice points probably has to do with the least amount of effort the consumer has to perform in order to circulate. It is an economy of movement, taking the fewest number of steps to reach a destination (Bitgood, 2009; Locatus, 2010).

**Inertia (and exit gradient)**

People continuously walk in a straight line. Consumers take the straightest line between destinations, if other factors do not distract them (Bitgood, 2009; Locatus, 2010).

**Avoidance of backtracking**

People do not walk the same way twice. When they are forced in a layout, they often stay a shorter period of time compared to more open layouts (Koolhaas, 2001).

**One-sided viewing**

Consumers move along only one side of a path. This means there is always competition between the two sides and one side will have a lower rate of attention (Bitgood, 2009). The width of the aisles will strongly influence crossing the path. Wide aisles will cause more effort and are less crossed from one side to the other.

**Main dominant path security**

Consumers avoid paths that are visually cut off from the main path. (Bitgood, 2009). Consumers must be stimulated in order to create more effort to bear off to another direction. As consumers are less attracted to alternative routings deviating from the main path, the value of a certain alternative route decreases (Figure 5)

*Figure 5: Alternative routing*
*Source: Locatus, 2010*
To conclude, consumers always seem to follow the economy of movement, taking the direction with the fewest steps. To deviate from this principle, consumers need to be stimulated by the encountered environment. To what extent consumers need to be stimulated in order to deviate from this principle, is researched in this study.
2.5 CONCLUSIONS

Understanding the relation between consumer behaviour and environment, desires insight in the field of knowledge related to environmental psychology.

Environmental stimuli (S) activate an internal process (O), in order to create a response (R).

The environmental stimuli are the environment consumer’s encounter while shopping. This indicates retail designers and developers might manipulate a certain response by changing the encountered environment.

However, every internal process of a consumer perceiving an environment is different, as it is related to his personal circumstances, situational factors and psychological factors. While acknowledging the individuality of consumers’ internal processes, this study assumes that differences between (groups of) consumers are larger than within consumers, and this study therefore focuses on the ‘mainstream’ or ‘average’ consumer, as well as on groups of consumers.

A consumer who has 15 minutes in his lunchtime to shop on his own to buy groceries for dinner, reacts totally different on an environment than a consumer who took a day off to shop with friends to buy clothes.

To identify which kind of consumers take part of this research, in the survey questions will be formulated to investigate:

- Personal circumstances (i.e. gender, education, income...)
- Psychological factors (i.e. pleasure, arousal)
- Social factors (i.e. household, cultural background ...)
- Shopping values (hedonic, utilitarian)
3 ENCOUNTERED ENVIRONMENT
3.1 INTRODUCTION

In order to maximize profit and minimize risk, retail developers always try to make consumers feel comfortable. When feeling comfortable, consumers are more likely to stay and spend more time, circulating through the entire shopping mall. However, it has been acknowledged that a lack of empirical research addressing the role of the actual retail environment on vertical circulation behaviour is present. As developers try to control and manipulate vertical consumer behaviour, they do not exactly know which environmental characteristics make consumers vertically circulate (Bitner, 1992).

This chapter discusses the contribution of the encountered retail environment to vertical circulation behaviour of consumers.

To create insight in the contribution of the retail environment to vertical circulation of consumers, it must be made clear what a retail environment consists of. What kind of role does it play within the decision-making process of consumers to approach or avoid vertical circulation? Is the retail environment really that important compared to other factors influencing consumer behaviour?

This chapter tries to find answers in literature using various studies to obtain an extensive overview of what currently has been researched about the retail environment. The outcome of this chapter will be used as reference criteria for the evaluation of the case studies in chapter 5 to investigate whether there is a discrepancy between theory and practice.

3.2 EMOTION

Various researches have studied the effect of retail environment on certain consumer behaviour. Kotler (1973) is one of the first who described retail environment as “the effort to design buying environments to produce specific emotional effects in the buyer that enhance his (/her) purchase probability”. He states that consumers can be influenced by the retail environment, which means that atmospheric planning could be the difference between a success and a failure (Bitner, 1990).

These environmental cues aim to influence consumers in an emotional way to spend more time, more money, and to come back again. As these environmental cues act on emotions, the question arises what kind of emotion a retail environment evokes since shopping has become more and more an emotional involvement? When there is little stimulation through environmental cues, consumers are bored and experience a retail environment as non-pleasant with little satisfaction. However, too much stimulation will have the same effect, because all new impression will lead to a certain amount of stress (Figure 6).

Developers try to create a certain balance within the amount of stimulation in which consumers feel pleasant, which leads to the desired effect of more time and money spent in the shopping mall (Massara, 2009).
3.3 ‘COMFORT OF THE KNOWN’ & ‘EXCITEMENT OF THE NEW’

According to the literature (Gianotten, 2008) and also mentioned in the case study interview with J. Sinke¹, consumers feel most pleasant if the amount of stimulation is balanced somewhere between levels associated with the so called retail environment that express “comfort of the known” and a retail environment expressing “excitement of the new”. ‘comfort of the known’ is focused on emotions that are linked with comfort: feeling safe, secure, certain and familiar with the area itself (Gianotten, 2008).

‘Whatever happens, I know my shopping trip is successful and I feel comfortable when doing so’ (interview Sinke, 2010).

‘excitement of the new’ however, is more related to bringing a new experience, triggering a certain amount of excitement. ‘excitement of the new’ is all about feeling stimulated, surprised and enthusiastic (Gianotten, 2008).

Consumers need to explore the mall and discover it piece by piece, bringing every time a new surprise (interview De Bont, 2010²).

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¹ Sinke, J. (25-09-2010) Interview case-study Myzeil. MAB development, ‘s-Gravenhage

² De Bont, B. (12-7-2010) Interview case-study Forum Duisburg. Multi, Gouda
‘comfort of the known’ vs. ‘excitement of the new’

Gianotten (2008) states that people are looking for comfort or excitement, which also depends on personal characteristics as discussed in paragraph 2.3. If consumers are utilitarian and task-oriented, they prefer less variation. They are particularly focused on performing the task wasting the minimum possible time. On the other hand, hedonic shoppers prefer some variety and would like to be surprised. Both dimensions have a positive influence on consumer behaviour (Gianotten, 2008). People do want to feel comfort to perform run (utilitarian) shopping, but also want to shop in an attractive environment. H&M has described this balance in their annual report:

‘The stores play a vital role in our brand. The aim is to create an attractive and inspiring environment in which customers feel at home and can easily find what they are looking for in the assortment. H&M must always surprise with something new and must always look fresh and appealing’ (in: Gianotten, 2008)

Gianotten (2008) states that a shopping mall has to be challenging for both types of shoppers and considers architecture and design as some of the tools to realize this. It could be concluded that, based on emotion, two different kinds of environmental characteristics are important in retail design. The first type of environmental characteristics is more focused on providing comfort to consumers, whereas the second type of environmental characteristics is more focused on bringing surprise.

In the current study, case studies were conducted and particularly directed at how in the investigated cases design characteristics relating to “comfort of the known” and relating to “excitement of the new” were addressed. In this way the case studies could be useful in acquiring (visual) references for the second part of this study in which a decision had to be made about the design characteristics include in the survey, as well as how to visualize the selected design characteristics.

To prepare for the case studies, the remaining of this chapter reviews existing literature regarding the retail design characteristics that are likely to influence vertical circulation of consumers.
3.4 VERTICAL CIRCULATION

‘Retail environment’ has a lot of different faces. Some merely describe the retail environment as ‘atmospherics’ (Kotler 1973, Turley and Milliman, 2000). Others have used the term more broad and do not only include atmospherics, but also characteristics which have their influence not when vertically circulating, but during the decision-making process to visit a certain shopping mall. Examples of the latter are location, parking possibilities and costs, etc.

Katelijn et al. (2002) describes the retail environment as consisting of space-related, people-related and product-related characteristics. Product-related characteristics are based on the characteristics of the products itself and concerns characteristics that influence consumer behaviour, such as price, colour, size, odour, etc.

Space-related characteristics could be seen as controllable elements at point of interaction between the retail environment and its consumers. These characteristics may influence vertical circulation of consumer and ultimately could affect the purchase behaviour of consumers.

Human related characteristics are all human actors in the retail environment including personnel and consumers. (Bitner, 1990). Turley and Milliman (2000) characterized this influence using the term ‘human variables’. This includes the employee characteristics, but also customer characteristics and crowding.

As this research is proposed to give advice to designers and developers, this research will focus on space-related characteristics, which can be designed and manipulated by designers and developers of shopping mall.

**Space-related characteristics**

Most researches describe space-related characteristics as atmospherics, creating a certain look and feel to a shopping mall, affecting one’s behaviour.

Turley and Milliman (2000) mention 4 classes of space-related atmospherics: external variables, general interior variables, layout and design variables and point of purchase and decoration variables. This research focuses on the vertical circulation pattern of consumers and the encountered environment during this circulation. This ranges from the point a consumer entered a shopping mall to the point consumers entered a certain store. The study excludes external variables and specific store layouts and point of purchase variables. It is about the general interior variables, such as colour schemes, lighting, width of the aisles, etc.

While the term ‘atmospherics’ dominates literature (Katelijn et al. 2002; Massara, 2009; Spangenberg et al., 1996), another characteristic within retail environment must be taken into account. Atmospherics are only the physical cues consumers pick up, conscious or unconsciously, while confronted with them. Katelijn et al. (2002) describes characteristics not only influencing the looks and feels of a shopping mall, but also characteristics influencing the functioning of the shopping mall. These functional characteristics are not always visible or physically present from every point of view for a consumer. Examples are the lay-out of the shopping malls (location of stores, type of stores, etc.) and the routing of shopping.

Other studies confirm the importance of these functional characteristics
that have a great impact on the functioning, but also influences success of a shopping mall (Gianotten, 2008.; Warners, 2010 ; Bodegraven, 2004).

For example, a consumer could set a destination to a certain store in order to buy a product. While circulating from entrance towards the destination, consumers could be interfaced with other stores, influencing a certain impulsive buying behaviour.

To summarize, a shopping mall might influence consumers ‘vertical circulation behaviour by the way the space-related characteristics are designed. The ‘retail environment’ is shaped not only by how a shopping mall’s looks or feels (atmospherics and atmospherics) but also by how it functions (lay-out and routing).
3.5 VERTICAL CIRCULATION AND MORE...

A retail environment is more than just the retail environment when vertically circulating inside a shopping mall. This paragraph will discuss which characteristics of the retail environment influence consumer behaviour during shopping.

Gianotten (2008) reviewed the Dutch literature and summarized and ranked the environmental characteristics influencing consumer behaviour. A major advantage is not only that it allows looking for environmental characteristics that are considered important by Dutch customers as these are also targeted at in the current study. Moreover, Gianotten also conducted about the same study both in 2003 and in 2008, using a large sample size. Using factor analyses, he found that 6 dimensions influenced consumer behaviour. That is:

1. The functional lay-out and quality: which stores and products are present inside a shopping mall? Which variety, what quality and what kind of service do these stores offer?
2. Additional services and facilities: which additional services and facilities are present? (sport, toilets, child nursery and other entertainment)
3. The presence of specialty stores
4. The interior, safety and atmosphere, summarized as ambiance. This is formed by the interior of a shopping mall (architecture and aesthetics)
5. Accessibility and convenience. Is it easy to reach? What is the distance from a consumer’s home? What are the opening times?

6. The parking possibilities

From these six dimensions, two dimensions are relevant for the current study: firstly functional lay-out and secondly the dimension ‘interior, safety and atmosphere’.

Gianotten calculated both in 2003 and 2008 two outcome measures: perception and importance of every dimension (Table 5). The difference between these two is referred to as the “gap” and shows to what extent the perception lags behind the importance of the characteristics of both dimensions. The larger the gap, the more attention it deserves.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Functional lay-out</td>
<td>7,6</td>
<td>6,7</td>
<td>7,8</td>
<td>6,8</td>
</tr>
<tr>
<td>Additional facilities</td>
<td>5,1</td>
<td>4,0</td>
<td>4,6</td>
<td>4,0</td>
</tr>
<tr>
<td>Specialty stores</td>
<td>5,3</td>
<td>4,0</td>
<td>5,5</td>
<td>4,2</td>
</tr>
<tr>
<td>Ambiance and atmosphere</td>
<td>6,8</td>
<td>6,1</td>
<td>7,1</td>
<td>6,3</td>
</tr>
<tr>
<td>Accessibility</td>
<td>7,4</td>
<td>7,0</td>
<td>7,6</td>
<td>7,0</td>
</tr>
<tr>
<td>Parking opportunities</td>
<td>8,0</td>
<td>6,0</td>
<td>7,4</td>
<td>5,7</td>
</tr>
</tbody>
</table>

*Table 5: Importance and perception. Source: Gianotten, 2008*

The two dimensions that since 2003 decreased in importance are parking and additional services, whereas accessibility increased from 2003 to 2008. It could be suggested that consumers more often use public transport because of a better infrastructure, leading to a lower demand of parking. Remarkably, functional lay-out had the highest score on importance, before accessibility and parking. However, other studies found that location, accessibility, parking and functional lay-out were the most dominant features in consumer decision making (Massara, 2009;
Warners, 2010). Indeed, Bolt (2003) stated that a certain retail environment such as design/architecture is not one of the success factors. Warners (2010) showed that it makes a difference how this was researched and although he found that accessibility and parking were very important for consumer decision making, he also found that atmosphere and ambiance influenced consumer decision making, be it to a smaller degree. This is interesting, because this might partly explain why in the study of Gianotten (2008) functional lay-out was much higher ranked that one would expect from other studies. The use of different methods might underestimate the importance of ambiance and atmosphere.

Functional lay-out

The importance of functional lay-out is closely related to motives of consumers to shop. For inner-city retail, Bolt (1995) stated that to enhance retail profits comparative shopping within a certain ambiance should be emphasized. Consumers prefer comparative shopping and this leads to a certain level of clustering. Such a degree of clustering is only achieved in larger shopping areas (Bolt, 2003). The need for clustering creates the need for a good variety and a high quality of functional lay-out to perform comparative shopping.

Atmosphere and ambiance

Atmosphere has become increasingly important over the last years. This could be the effect of a growing experience economy and a competitive market which forces project developers and retailers to distinct themselves. The growing urge of an own identity was also mentioned by Gianotten (2008), who found that 63% of the consumers think all shopping malls look alike. When all shopping malls look similar, consumers make a more rational choice. Distinctions between shopping malls using atmosphere and ambiance could create another feeling for consumers, making it an important characteristic to address in retail design. It could eventually be the difference for consumers to choose between several shopping malls. For functional lay-out, ambiance and convenience, the discrepancies were enlarged. It seems the perception of the consumers within current shopping malls is lagging behind the importance these dimensions should have.

Conclusion

Shopping has always been a certain emotion. However, last years, designing shopping malls it is not only about creating a shopping mall, but also about creating a shopping experience. As shopping malls open up towards the street, a shift could be noticed. Inner city retail has taken a change, as it has not only the purpose of buying stuff, but also to enjoy.

Retail design is about creating a public space where people can freely enjoy, without an overt pressure of buying. For this reason, it might well be that architecture and atmospheric becomes the more and more important in the future.
3.6 CONCLUSIONS

Although retail developers try to influence consumer’s response to increase retail profits little attention is given to the way consumers experience an environment and respond to it. The retail environment holds several environmental cues and aims to influence consumers in an emotional way to spend more time and more money, and to come back again.

Various researches indicated that increased levels of pleasure encourage consumers to spend more time in shopping malls (Massara, 2009). To increase pleasure, there must be sufficient stimulation from the encountered environment not to feel bored, whereas too much stimulation would stresses out consumers. A proper balance would be such that both consumers who feel pleasant with ‘comfort of the known’ and consumers preferring ‘excitement of the new’ (Gianotten, 2008; Sinke, 2010) are satisfied. ‘comfort of the known’ is focused on the ease for consumers to shop, whereas ‘excitement of the new’ is more related to bringing a new experience, triggering a certain amount of excitement and contributes to the idea of shopping being an experience.

In a retail environment one could distinguish characteristics about whether or not a shopping mall functions (functional characteristics) from characteristics related to the looks and feels of a shopping mall (atmospherics).

Besides accessibility of the shopping mall, functional characteristics seem to dominate over the importance of atmosphere when it comes to their effect on consumer behaviour.

However, it might well be that atmosphere becomes the more and more important for inner-cities, as emotion plays a moderating role in shopping over the last decades.

For the case studies (see chapter 5) the emphasis will be on the space-related characteristics addressing “comfort of the known” and “excitement of the new”. The next chapter will elaborate on what specific space-related characteristics will be addressed in the case studies and the subsequent survey.
RETAIL DESIGN CHARACTERISTICS
4.1 INTRODUCTION

The space-related characteristics affecting emotions of consumers are most relevant for this research, as these can be addressed by designers and developers (retail design).

This paragraph first discuss the retail design characteristics mentioned in literature and addresses to what extent these are likely to influence vertical circulation behavior of consumers. Supportive to the literature framework, expert interviews are used as preparation for the actual case-studies to identify the individual design characteristics that eventually shape the retail design consumers are confronted with, when vertically circulating inside a shopping mall.

The outcome of this chapter will be used as reference criteria for the evaluation of the case studies in chapter 5 to investigate whether there is a discrepancy between theory and practice.

To define the retail design characteristics, the framework (Figure 7) by Katelijn et al. (2002) was used. In this framework, the ‘looks and feel’ of a shopping mall are distinguished from the functional characteristics of the shopping mall, dealing whether or not a shopping mall ‘functions’.

Several characteristics affecting both atmospheric and functional quality of a shopping mall may have a conjoint, non-additive effect upon each other.

Consumers are not always physically confronted with functional characteristics or aware of them, as they are not formed by a physical image, but by the total design of a shopping mall. On the contrary, characteristics of aesthetics do physically confront consumers, as they circulate through a shopping mall. For this research, only the atmospheric and functional characteristics which consumers are visually confronted with are used, since these might be suitable to use in visual vignettes. This excludes characteristics such as temperature, odor, sound and music.
4.2 FUNCTIONAL CHARACTERISTICS

The functional characteristics define how a shopping mall functions. They form the basics of the retail design of a shopping mall. If these characteristics do not function well, a shopping mall is bound to be a failure. The functional characteristics include the most important characteristics mentioned in literature, i.e. functional lay-out, supported by routing and signing (Katelijn et al., 2002).

4.2.1 ROUTING

The purpose of routing is to optimize the circulation from a designer’s point of view. However, routing cannot be completely designed and manipulated by designers, because a circulation pattern is always formed by consumer’s interpretation of the shopping mall. Designers try to optimize the fit between intended routing and the actual routing of consumers.

‘The challenge lies in getting the most consumers at the upper floor, followed by managing this flow of consumers’ (in interview: Sinke, 2010)

Position of destinations

According to theory, consumers always circulate towards a certain destination, which could be a certain transport hub or anchor present in the routing (Locatus 2010; Bitgood, 2009). As consumers always circulate within a shopping mall from destination to destination, the position of destinations is imperative.

Position of elevation points.

For vertical circulation the presence of elevation points creates alternatives for consumers to vertically circulate. In order to stimulate consumers to take alternatives, a visual connection between multiple elevations makes consumers aware of the alternatives. It is important that the elevation points are at the centre of consumer’s attention during circulation (De Bont, 2010; Veenendaal³, 2010; Sinke, 2010).

Type of routing: Alternatives

To reach a destination, consumers will always choose the shortest route to get somewhere and they do not easily deviate from this easiest route (Bitgood, 2009; Underhill, 2007; Locatus, 2010; Sinke, 2010; Veenendaal, 2010). As this economy of movement seems to be imperative for actual routing of consumers, one of the instruments to optimize the intended routing is to minimize alternatives distracting from the main path. It is generally thought that the fewer the alternatives, the better the routing is. When too much alternatives are offered, the consumer will lose the cleanness of the concept and will show avoidant behavior (De Bont, 2010).

Size of routing

In addition to a limited number of alternatives, the routing needs to be manageable, as this improves the chance consumers will circulate through the entire shopping mall (Veenendaal, 2010).

³ Veenendaal, J. (03-09-2010) Interview case-study Bijenkorf. Bijenkorf, Rotterdam
**Type of elevation points**

A lack of alternatives could also lead to a form of partial determinism, in which consumers are not offered alternatives but are forced into a certain direction. For vertical circulation, this determinism can be found in the type of elevation points. An example is the express stairway, directly circulating consumers from ground floor to upper floor, skipping several floors. According to Sinke (2010) this could be one of the success factors for the functioning of upper floors, as it positions the upper floor as second ground floor.

*According to literature and expert interviews, the following characteristics of routing seem to influence vertical circulation behavior:*

- Position of destinations; source points, exits/entrances, anchors
- Position of elevation points
- Type of elevation points
- Type of routing; alternative routings
- Size of routing
4.2.2 FUNCTIONAL LAYOUT

Functional layout is the most important characteristic of a shopping mall influencing consumer behavior (Gianotten, 2008).

**Clustering on upper floor**

For inner-city retail, compared shopping is the dominant motive to shop (Bolt, 1995). This type of shopping, demands a certain mass of shopping and variety of shopping for a dynamic and innovative shopping mall (Van den Berg⁴, 2010). To offer these dynamics, a consumer needs clustering of shops so he can both compare and get a large offer at the same location. When stores are clustered, the consumer does not have to circulate and search within the entire mall, minimizing the amount of effort that has to be made. Besides minimizing the effort, clustering creates a strong identity to a floor, which could strengthen the anchor power of an upper floor (Sinke, 2010).

**Position of anchor stores**

As anchors are used to set destinations of consumers, the position of anchor stores is critical (Veenendaal, 2010). The more attractive the anchor power on the upper floor, the more likely consumers will choose to vertically circulate.

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⁴ P. Van den Berg (25-08-2010) Interview consumer behavior. Stratoloog, Perspectives

**Position of fun, run and goal oriented products**

In addition to the position of anchor stores, a lot of researches were done about the location of certain type of products within a shopping mall. These studies showed that high frequency products (run) are mostly located at the basement and ground floor and goal oriented products and leisure on the upper floor (Veenendaal, 2010).

This classification could be dedicated to the simple fact consumers are willing to spend more effort for goal-oriented products, compared to high frequency products.

**Position of functional facilities**

Another characteristic used to attract consumers to vertically circulate, is locating functional facilities at upper floors. Most used and most likely to influence vertical circulation are parking possibilities at the upper floors (De Bont, 2010). However, it is hard to keep consumers on the upper floor when entering the mall.

According to literature and expert interviews, the following characteristics of functional layout seem to influence vertical circulation behavior:

- Clustering on upper floor
- Position of anchor stores
- Position of fun, run and goal oriented products
- Position of functional facilities
- Position of Horace
4.2.3 SIGNING

Signage is most used to help consumers to orientate within a shopping mall, to prevent irritation but also to create a certain “comfort of the known” feeling. Consumers prefer to have a certain sense of control during their shopping trip.

‘Whatever happens, I know my shopping trip is successful and I feel comfortable when doing so’ (in interview: Sinke 2010).

High vs. Low information load

To enhance retail profits, consumers must be stimulated to vertically circulate, but still feel comfortable. To feel comfortable, the environment needs to be calm to overcome an overload of information, making consumers uncomfortable and insecure (Sinke, 2010). This statement has been confirmed in literature (Bodegraven, 2004) as an overload of information has a negative influence on approaching behavior. Searching for a store within a shopping mall can cause a certain irritation and that is the last shopping malls try to reach with the customer (Veenendaal, 2010). It is important that stores are easy accessible, easy to find, and this all with the least amount of effort (Bitgood, 2009).

Picture vs. text signing

According to Warners (2010), signage using pictures is to be preferred to text when dealing with atmospheric and architectural features. The use of pictures could also strengthen the clustering and identity of a certain floor (Sinke, 2010).

According to literature and expert interviews, the following characteristics of signing seem to influence vertical circulation behavior:

- High/Low information load
- Use of pictures/text
4.3 AESTHETICS

Aesthetics is all about finding a balance between “comfort of the known” and “excitement of the new”. On the one side consumers prefer the comfort and ease of knowing an environment in order to orientate, on the other hand they want to be challenged and surprised every time. (Gianotten, 2008)

4.3.1 SPATIAL FORM

Organic vs. Orthogonal

In literature, it seems organic forms are more preferred than a straight line (Van den Berkhof, 2008, Warners, 2010; Bodegraven, 2004). It lowers the effort in psychological sense, as it takes away the feeling of having to walk a lot, compared to a straight line (Borking, 1998). Straight lines are at risk of also bringing boredom. Surprise comes in using bent paths. It is about excitement, giving the consumer a sense of wandering around, in which part by part, a shopping mall is discovered (De Bont, 2010). According to Sinke (2010), organic forms are more natural and could attract and guide consumers towards the upper floor (Figure 8).

Spatial form: Open vs. Closed

It is important that not everything situated at the other floors is visible from the other levels. Yet, the consumer still needs to know what is happening on other floors (De Bont, 2010). This offers a certain form of surprise, in which consumers are discovering the shopping mall part by part (Figure 15).

Not showing everything by closing the sight towards the upper floors is also used to take away orientation for consumers, forcing consumers to vertically circulate in order to orientate (Sinke, 2010).

A lot of malls use this strategic design of opening up towards the upper floor. As consumers vertically circulate, the design opens up, creating a stronger connection between product-consumer, which helps consumers to orientate.

Spatial form: Human scale

The human scale is an important characteristic. According to various studies (Bodegraven, 2004; Warners, 2010), too large programs and too wide paths have a negative effect on the approach of consumers (Figure 16). This was also mentioned in one of the expert interviews:
‘Men moet de echtheid en kleinschaligheid van een winkelcentrum terugbrengen’ (in interview: Van den Berg, 2010).

However, too narrow paths and small spaces contribute to a poor quality. To feel comfortable, consumers still need to be confronted with a spacious environment, using high ceilings and wide paths. That is, the human scale must always be taken into consideration. (Sinke, 2010; Veenendaal, 2010).

**Spatial form: Vertical parcelation**

Vertical parcelation is about creating vertically oriented individual buildings which could stimulate vertical circulation, as the eye is attracted towards above (Figure 11). Vertical parcelation contributes to a building’s identity and allows for a certain variety and surprise within the shopping mall. Little research is present regarding vertical parcelation.

**Spatial form: Boundaries stores / circulation paths**

Breaking boundaries (façades) between path and stores could improve and stimulate consumers to not only circulate, but to create a better visual line between consumer and product. According to the research of Bitgood (2009), consumers always perform the least amount of effort in order to circulate. Removing the boundaries between path and stores does also change the function of the path, from an area used to transport consumers from destination to destination into an area which is a destination on itself (Figure 18).

According to literature and expert interviews, the following characteristics of spatial form seem to influence vertical circulation behavior:

- Organic vs. orthogonal
- Open vs. closed
- Human scale
- Vertical parcelation
- Boundaries stores / circulation paths
4.3.2 VISUAL LINES ORIENTATION

*Consumer-destination*

Visual lines towards a destination are of uttermost importance to orientate. When vertically circulating, a strong visual relation between consumer and destination must be present. Orientation is one of the success factors inside a shopping mall. (Van den Berg., 2010; Veenendaal, 2010; De Bont, 2010). When visual lines towards a destination are not present, the consumer is likely to exit or not enter a certain floor (Figure 19). Since a destination is not only a store, but could also be an exit, having visual lines with exits is also important, as consumers feel more comfortable knowing how to exit a floor (Veenendaal, 2010).

*Figure 19: Visual lines.
Source: own*

According to literature and expert interviews, the following characteristics of visual lines seem to influence vertical circulation behavior:

- Visual lines consumer-product
- Visual line consumer-exits

4.3.3 MATERIALS / COLOR

According to theory (Bodegraven, 2004; Borking, 1998), consumers are more likely to show a certain approaching behavior at warm colors compared to cold colors (Figure 20 and Figure 13).

*Figure 20: Warm colors.
Source: own*

*Figure 13: Cold colors.
Source: own*
However, Warners (2010) found that consumers preferred a more modern setting, using the colors blue and violet. De Bont (2010) states that a shopping mall with only cold colors is often too museal and people can never escape from this. Especially for leisure cold colors are not preferred: consumers are not feeling comfortable eating within a museum like atmosphere. For leisure activities, warm colors are important to deviate from this museum like atmosphere.

Variation of materials/color

A shopping mall needs to bring surprise by its spatial form and color/material use, which could attract consumers from one floor to the other. It constantly needs to attract the attention of consumers bringing a certain variation and surprise, creating every time a new experience (Bodegraven, 2004; De Bont, 2010; Sinke, 2010).

According to literature and expert interviews, the following characteristics of materials/colors seem to influence vertical circulation behavior:

- Type of materials/colors
- Variation materials/colors

4.3.4 LIGHTING

While most researches are focused on daylight, artificial light seems to become more important, especially combining artificial light with in-motion colors. As artificial light is always a substitute for daylight and daylight never a substitute for artificial light, daylight is likely to be most dominant.

Daylight

‘Maybe walking towards daylight is more attractive compared to walking away from it’ (in interview: De Bont, 2010)

According to the research of Borking (1998), the presence of daylight has a positive effect on consumer behavior. This is confirmed in the research of Bodegraven (2004), which reported that people want to have a roof, but still need daylight. The goal of daylight could be two sided. First, it creates an attractive spatial environment by light entering the roof. Second, it creates a feeling of being outside, leading away from the idea of a shopping mall as a closed box.

Sinke (2010) describes that it is important to pull down the daylight towards the lower floors, creating impulses to vertically circulate. It is not about walking to the daylight, but about making a connection with it, which keeps getting stronger when entering the upper floors.

Artificial light / in-motion

According to the research of Bodegraven (2004), using artificial light could stimulate consumer’s to approach. In relation to vertical circulation, artificial lighting is most interesting when combined with in-motion colors. A rich variation of colors offers more quality (Bodegraven, 2004) while the changing pattern could also attract the eye more quickly.
In several shopping malls it has been used and seems to become the more and more important. This could contribute to the success for The Sting in Eindhoven, vertically circulating consumers to the upper floor (Figure 14).

According to literature, the following characteristics of lighting seem to influence vertical circulation behavior:

- Daylight
- Artificial light / in-motion lighting

4.4 GRAPHIC ELEMENTS

4.4.1 PRESENCE OF ART/GREEN/BLUE

According to Bodegraven (2004), there is a strong behavioral argument for the presence of art, green and blue. However, it still seems the question whether these graphic elements could have a link with vertical circulation. Green is often combined with leisure, as leisure seems to influence vertical circulation behavior and might enhance a more comfortable feeling and identity in a place to enjoy, relax and eat.

According to literature and expert interviews, the following characteristics of functional lay-out seem to influence vertical circulation behavior:

- Presence of green/blue/art

4.5 CONCLUSION

This chapter identified 27 features across eight main categories of space-related characteristics (see Table 6), that will be used as a set of criteria to structure the analysis of the case studies in chapter 5.
### Checklist Retail Design Characteristics Case-Studies

<table>
<thead>
<tr>
<th>A. Routing</th>
<th>F. Spatial form</th>
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</thead>
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<td>F.1 Organic vs. Orthogonal</td>
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<tr>
<td>A.2 Position of anchors</td>
<td>F.2 Open vs. Close</td>
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<td>A.3 Position of source-points</td>
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<td>A.4 Type of elevation points</td>
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<tr>
<td>A.5 Form of routing</td>
<td>F.5 Boundaries stores / circulation path</td>
</tr>
<tr>
<td>A.6 Size of routing</td>
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<tr>
<td>A.7 Functioning of routing</td>
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<tr>
<th>B. Functional lay-out</th>
<th>G. Signing</th>
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<tbody>
<tr>
<td>B.1 Clustering on upper floor</td>
<td>G.1 High/Low information load</td>
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<td>B.2 Position of fun, run and goal oriented products</td>
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<td>B.3 Position of functional facilities</td>
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</tr>
<tr>
<td>B.4 Position of leisure</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Visual lines : Orientation</th>
<th>H. Art/green/blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.1 Visual lines consumer-product</td>
<td>H.1 Presence of art</td>
</tr>
<tr>
<td>C.2 Visual lines consumer-exit</td>
<td>H.2 Presence of green / blue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. lighting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D.1 Daylight</td>
<td></td>
</tr>
<tr>
<td>D.2 Artificial (in-motion) lighting</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E. Materials / color</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>E.1 Type of color/materials</td>
<td></td>
</tr>
<tr>
<td>E.2 Variation of materials / colors</td>
<td></td>
</tr>
</tbody>
</table>

*Table 6: Retail design characteristics. Source: own*
5 CASE-STUDIES
5.1 INTRODUCTION
The case-studies are used to generate a visual impression of the retail characteristics found in literature and expert interviews that were conducted as starting point for the case studies. It shows insight in the functioning of a retail environment as a combination of retail design characteristics. In this way, it provides insight into the ‘main’ retail design characteristics and adds to insight into the significance of relations between several characteristics. At the end of this chapter, the following research question is answered:

- What might be considered as important characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation?

Using the space-related retail characteristics listed in Table 6, six case-studies were performed. For an extensive description see the annex case studies in a separate volume to this report. Here, only a concise evaluation of all case-studies is presented, because the case studies were performed to provide high quality reference material for the development of the discrete choice part in survey (see chapter 6 and further).

5.2 SELECTION CASE-STUDIES

Selection criteria
The case-studies are selected based using the following criteria:

- They must be relevant for vertical circulation of consumers. This makes only multiple layered shopping malls interesting to research.
- A main focus on inner city (integrated) shopping malls, as these types of developments are determined by their environment. Typically, these malls bring more complexity, as ground scarcity within inner cities push retail developers to creative and innovative solutions.
- Among case-studies the emphasis is on showing differences in the expression of retail design characteristics. For example, when only performing case-studies with warm colors, nothing could be said about cold colors or the difference between the two.
- The transparency of information is another selection criterion. If possible, shopping malls are chosen with the highest amount of information available.
- There have to be a certain mass present with a minimum of 4,000 square meters per layer.
- The location of the shopping malls. At least two shopping malls must be located in the Netherlands.
<table>
<thead>
<tr>
<th>Case-study</th>
<th>Myzeil</th>
<th>Palladium</th>
<th>Westfield</th>
<th>Forum Duisburg</th>
<th>Bijenkorf</th>
<th>Piazza</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Frankfurt</td>
<td>Prague</td>
<td>London</td>
<td>Duisburg</td>
<td>Rotterdam</td>
<td>Eindhoven</td>
</tr>
<tr>
<td>Type of development</td>
<td>Inner-city (integrated) retail development</td>
<td>Inner-city (integrated) retail development</td>
<td>Peripheral development</td>
<td>Inner-city (integrated) retail development</td>
<td>Inner-city (integrated) retail development</td>
<td>Inner-city (integrated) retail development</td>
</tr>
<tr>
<td>Size</td>
<td>77.000</td>
<td>119.000</td>
<td>150.000</td>
<td>57.000</td>
<td>18.000</td>
<td>26.000</td>
</tr>
<tr>
<td>Nr. Of shops</td>
<td>75</td>
<td>200</td>
<td>275</td>
<td>64</td>
<td>18+ (brands)</td>
<td>20</td>
</tr>
<tr>
<td>Nr. Of Horeca</td>
<td>11</td>
<td>30</td>
<td>45</td>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Retail layers</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Parking spots</td>
<td>1390</td>
<td>912</td>
<td>4500</td>
<td>1300</td>
<td>460</td>
<td>2000</td>
</tr>
<tr>
<td>Details</td>
<td>Longest stairway in Europe, modern architecture</td>
<td>Express stairway, In-motion color</td>
<td>9meter fronts, forms</td>
<td>store organic</td>
<td>Best European shopping centre 2010</td>
<td>Warehouse</td>
</tr>
</tbody>
</table>

Table 7: Selected case-studies. Source: own

Table 7 shows general information about the six case-studies selected to analyze.

Forum Duisburg was chosen based on the transparency of the information, as it is developed by Multi Development. It has also won prizes and is known for its use of warm colors and materials.

Westfield is included because of its spatial form, double store heights and the functional lay-out. These characteristics are preferred above the fact that it is not an inner-city development.

Piazza was chosen as it is one of the only 4-layered shopping mall in the Netherlands. As this research is proposed for Dutch developers, relevant Dutch case-studies were considered imperative.

Bijenkorf was chosen for its the functioning of warehouses. According to Veenendaal (2010), shopping mall developers could learn from the functioning of warehouses as they both try to stimulate the customer to spend more time and money using retail design.

Myzeil is known for its modern architecture and has the longest stairway in Europe. As the stairway skips several floors, it would be interesting to investigate how consumers react to this kind of stairways.

Palladium was partly chosen for its express stairway, directly leading from ground floor to upper floor. Another interesting feature is the tunnel of in-motion-lightning, intended to attract consumers to vertically circulate and bringing surprise to every consumer taking the stairway.
5.3 STRUCTURING CASE-STUDIES

1. MAPPING the functional characteristics

To give a critical review on the case-studies, some background information is necessary about how the characteristics identified in chapter 4 (see Table 6) were interpreted and judged upon. This paragraph structures how the criteria derived in chapter 4 were conceptualized.

Functional characteristics

In chapter 4 the following functional characteristics were identified:

For routing, the characteristics

- Position of elevation points
- Position of anchors
- Position of source-points
- Type of elevation points
- Form of routing
- Size of routing
- Functioning of routing

For functional lay-out the relevant characteristics were:

- Clustering on upper floor
- Position of fun, run and goal oriented products
- Position of functional facilities
- Position of leisure

The routing and functional lay-out was analyzed mapping certain functions and features of a shopping mall into AutoCAD. Mapping these functional characteristics creates patterns which were used in the further analyses of a shopping mall.

Routing

To identify the routing, the following characteristics are present within the overview in AutoCAD.

- Flow of Passersby
- Location of anchors
- Actual routing
- Poor functioning stores

Flow of passersby

Little transparency has been given by owners and developers concerning the number of passersby within a shopping mall. To create insight in the flow of passers-by, every elevation point has been evaluated for 10 minutes, creating an overview of the number of consumers going up and/or down within 10 minutes per elevation point. The ‘main’ elevation points could now be separated from ‘bad’ functioning elevation points.

This method has also been used at the entrances of every mall.

Locations of anchors

The locations of anchors are important as consumers always walk from destination to destination. But what are anchor stores? In this research most information about the anchors inside a mall is found in floor plans or other information available from the mall. When not present, the anchor stores of a shopping mall were identified in discussion with Multi Development.
**Actual routing**

The flow of passersby on elevation points and at source-points could now be combined with the location of anchors. This creates an actual routing of consumers, rather than showing the intended routing developers have designed.

**Poor functioning stores**

The poor functioning stores exist of empty units or stores not functioning well based on information from the developers.

**Example**

To illustrate the method used to analyze the actual routing of consumers, an example has been added to this report (Figure 15).
An example of mapping the actual routing

Figure 15: Example of mapping the actual routing. Case-study Myzeil. Source: own
B) Functional lay-out

The functional lay-out shows an overview of the branching and clustering of several branches. The functional lay-out is sub classified in run, fun and goal articles, leisure and functional facilities (Table 12).

Run, fun and goal articles

The types of shops inside a shopping mall are divided in run, fun and goal articles and how they are interpreted by the research (Table 8). This scheme has been set up with Multi Development (Ruigrok, 2010).

Leisure

Leisure includes any form of entertainment other than shopping inside a shopping mall. These could be mainly divided into restaurants, bars and cinemas.

Functional facilities

Functional facilities are all facilities that support the shopping and leisure. This includes kindergartens, parking possibilities, customer services, and toilettes.

Example

To illustrate the method used to analyze the functional lay-out of a shopping mall, an example has been added to this report (Figure 16).

<table>
<thead>
<tr>
<th>Products</th>
<th>Run</th>
<th>Goal</th>
<th>Fun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motive</td>
<td>Efficient shopping</td>
<td>Goal shopping</td>
<td>Compared shopping</td>
</tr>
<tr>
<td>Focus</td>
<td>Household</td>
<td>Household</td>
<td>Individual</td>
</tr>
<tr>
<td>Consciously/Unconsciously</td>
<td>Repetitive (un) conscious behaviour</td>
<td>Conscious behaviour</td>
<td>(un) conscious behaviour</td>
</tr>
<tr>
<td>Purchase behaviour</td>
<td>Necessity</td>
<td>Deliberate</td>
<td>Emotional</td>
</tr>
<tr>
<td>Purchase frequency</td>
<td>High</td>
<td>Accidental</td>
<td>Mid-high</td>
</tr>
<tr>
<td>Experience</td>
<td>Comfort</td>
<td>Comfort</td>
<td>Excitement</td>
</tr>
<tr>
<td>Type of shops</td>
<td>Household</td>
<td>Kids &amp; Toys</td>
<td>Mode</td>
</tr>
<tr>
<td></td>
<td>Supermarket</td>
<td>Home wares</td>
<td>Accessories</td>
</tr>
<tr>
<td></td>
<td>Bakery</td>
<td>Furniture</td>
<td>Electronics</td>
</tr>
<tr>
<td></td>
<td>Butcher</td>
<td>Photography</td>
<td>Footwear</td>
</tr>
<tr>
<td></td>
<td>Groceries</td>
<td>Sport</td>
<td>Cosmetics</td>
</tr>
<tr>
<td></td>
<td>Flowers</td>
<td>Opticians</td>
<td>Fashion</td>
</tr>
</tbody>
</table>

Table 8: Run, fun, goal articles. Source: own
An example of mapping the functional lay-out

Figure 16: Example of mapping the functional lay-out Myzeil. Source: own
2. VISUALIZING aesthetics and atmospherics

The aesthetical and atmospherical characteristics are visualized, divided into six main characteristics (Figure 25-Figure 30). Among these main characteristics, 15 features are analyzed:

Visual lines: Orientation
- Visual lines consumer-product
- Visual lines consumer-exit

Lighting
- Daylight
- Artificial (in-motion) lighting

Materials / color
- Type of color/materials
- Variation of materials / colors

Spatial form
- Organic vs. Orthogonal
- Open vs. Close
- Vertical Parcelation
- Human scale
- Boundaries stores / circulation path

Signing
- High/Low information load
- Text/pictures

Art/green/blue
- Presence of art / green / blue
3. CRITICAL REVIEW based on mapping and visualizing

Based on the gathered information about the shopping mall, a critical review is given towards the different retail design characteristics per mall. A linear 5-scale (---/ - / 0 / + / ++) is used to score the individual design characteristics analyzed according to Table 6. After completing all case-studies, the scores are compared with each other, to identify the different levels of design characteristics.

4. EVALUATION based on different environments

How a shopping mall functions

How a shopping mall functions, defined by the functional characteristics of the mall, in the further analyses is structured into a paragraph dealing with ‘comfort of the known’. In paragraph 3.2 is discussed that one might refer to these aspects as “comfort of the known”. ‘comfort of the known’ is focused on orientation and providing consumers the comfort that is needed to shop. As it is focused on economy of movement, it shows what kind of attribute levels emphasizes minimal effort to reach a certain destination. In describing conform of the known, also the shopping-related activities are considered as these clusters of aspects are closely related. That is, the functioning of a shopping mall is intended to shop and buy, the environment is also adjusted to such type of activities.

How a shopping mall looks and feels

The looks and feels, defined by atmospherics and aesthetics, in further analyses are structured into a paragraph dealing with ‘excitement of the new’. In paragraph 3.2 is discussed that one might refer to these aspects as “excitement of the new”.

‘excitement of the new’ shows to focus more on the looks and feels of a shopping mall. Closely related to ‘excitement of the new’ are the leisure-related activities: Looks and feels of a shopping mall have a lot to do with excitement bringing variation and surprise. In the case-study analyzes, this type of variation and surprise is often related to leisure-related activities, offering a form of attractiveness to the shopping mall.
5.4 EVALUATION CASE-STUDIES

Note: The evaluation of the case-studies is based on case-study analyzes, which can be found in the attached case-study booklet.

In order to evaluate, all analyses of the case-studies were combined. This makes it possible to identify the most positive and most negative scores, looking for certain interaction between variables (appendix 2).

The evaluation is based on the sub classification of the attributes used in literature and within the case-study analyzes: aspects related to “comfort of the known”, explaining how a shopping mall functions are first discussed. Thereafter aspects related to “excitement of the new” are summarized.
5.4.1 FUNCTIONING OF THE MALL
‘comfort of the known’

The functioning of the shopping mall is characterized by the form of the routing. Based on the evaluation of the case-studies, functioning of the shopping mall shows an interaction between the following aspects:

- High score on orthogonal forms
- High score on visual lines
- High score on structure in elevation points
- High score on presence of Daylight
- High score on no alternatives
- Low score on human scale
- High score on text signing

The environment is focused on maximizing comfort and ease within the design. Consumers need to have a good orientation to perform task-related shopping.

To create a good orientation, the orthogonal routing in combination with open visual lines optimizes consumer to set a destination and walk straight towards it, without performing additional effort (Figure 17-Figure 18).

To prevent consumers from having to walk a long distance to enter or exit a floor, shopping malls offer multiple elevation points. Also, visual lines between these elevation points are set so the consumer feels at ease and can leave or enter a floor easily, without having to perform too much effort (Figure 19).

Figure 17: Visual lines. Source: own
Figure 18: Visual lines. Source: own
Figure 19: Floor plan upper floor Westfield, London. Source: own
The presence of daylight also seems to create a moderating role. As consumers need a form of orientation, the openness of the daylight directly offers comfortable lighting to orientate and allows for clear visual sight towards upper and lower floors (Figure 20)

Preferably, no alternative routings are made to deviate as these environments focus on the main path domination, restricted to economy of movement. Consumers do not need to deviate from their preset route, but want to follow the main path to visually walk towards a destination.

It seems that to emphasize this visual connection, non-human scales are used. Double-store heights create a better visual line in order to orientate and set destination, rather than single store-heights (Figure 21).

Based on these attributes found in the case-studies, these type of malls offer a certain balance, in which consumer can easily circulate through the mall from destination to destination, rather than having to ‘search’ or ‘explore’ the mall. Attributes such as individual store signing support these environments, as consumers do not have to search for their product.

**Shopping related activities**

‘comfort of the known’ shows a strong relation with shopping related activities. Consumers do not have to feel comfortable to stay, but have to be attracted to move towards destinations.

Several design aspects that could illustrate the focus on shopping, were identified in the cases:

- Use of cold materials colours
- Anchors upper floor fashion/media
- Low score on open boundaries path/facades

According to the literature (Warners, 2010), consumers are more attracted to cold colours. However, regarding leisure, cold colours are not to prefer (De Bont, 2010). Indeed, several cases showed that leisure activities were surrounded with warm colours, and the gradient used in case-study Westfield seems to provide a solution to the tension between cold colours stimulating shopping expenses and warm colours stimulating longer stay in leisure (Figure 22).
The anchors present on the upper floor are also shopping related. To recognize and identify these types of anchors, the facades are closed. This creates an environment in which there is a strong visual boundary between path/stores (Figure 23).

![Figure 23: Boundary path/stores. Source: own](image)

Shopping-related environments focus on clear paths which are easy to follow and no obstacles between the visual connections between consumers and anchors being present.
5.4.2 LOOKS AND FEELS OF THE MALL
‘excitement of the new’

The design aspects contributing to “excitement of the new” are different from the design aspects associated with “comfort of the known”. The design is dominated by organic forms. To summarize “excitement of the new” is associated with:

- High score on organic forms
- Low score on visual lines
- Low score on structure elevation points
- High score on presence of daylight
- Low score on no alternatives
- High score on human scale
- High score on theme signing

The organic forms of a shopping mall create an asymmetric routing system, in which no strong structure can be recognized. This makes it into an exciting environment, in which every corner offers surprise, and allows consumers to discover the mall part by part.

Instead of having open visual lines, there is a game of open and close. A lack of visual lines makes consumers curious to circulate and experience the mall (Figure 24).

Without symmetry and a routing structure, the routing inside a shopping mall is ‘off-balance’ as a consumer is confronted with changing amounts of effort and several orientation possibilities, depending on his position in the mall. Often, a combination of several stairways is used and the asymmetry creates a surprising shopping mall, but also results in both dominant positions and weak positions within the shopping mall (Figure 25).

---

**Figure 24:** Open and closed visual lines. 
*Source: Own*

**Figure 25:** Floor plan upper floor Myzeil, Frankfurt. 
*Source: own*
As no clear structure or symmetry is present, anchors could not be clearly divided across 4 corners. It is not clear as of where to place which anchors, and consequently some anchor locations seems to be more dominant than other anchor locations. The shopping mall has no straight lines, but bent curves. No strong visual lines are present and in order to circulate towards a destination, it has to be found with help of signing (Figure 26).

‘excitement of the new’ emphasizes deviation from the preset route. Often, many alternatives are offered in these types of environments. The consumer is forced to choose in a way that holds no economy of movement, and more effort has to be performed in order to both circulate and find a destination.

It seems that this type of mall is all about sensation and surprise. Instead of supported by text signing, theme signing is used with pictures to address the attractiveness of an area, rather than the location of a specific store.

Leisure related activities

Consumers need to feel attracted to such a kind of shopping mall in order to feel comfortable. They need an urge to shop in such an ambiance where it is not only about shopping, but also about enjoying, and relaxing and staying. These are the so-called leisure-related activities.

There is a strong difference in the experience of shopping or leisure within a shopping mall. In the case-studies, the leisure-related activities showed important associations with the following design aspects:

- Use of warm materials colours
- Anchors upper floor Leisure
- High score on open boundaries path/facades
- High score on green/blue/art
- High score on human scale
- High score on organic forms

Concerning the leisure-related part of the mall, organic features are dominant in form, materials/colours and presence of green. It creates another environment, less built and more organically formed. Warm materials such as wood have been used, often in combination with the presence of green (Figure 27-Figure 28)
In order to strongly address ‘an organic sense’ and feel comfortable, consumers are offered a kind of ‘protection’, which is related to the human scale. This is often translated into the use of normal heights of floors rather than using double height floors. This feels less museal and industrial, creating a feeling of cosines in which the consumer can escape the shopping.

To both identify leisure and represent a certain form of unforced enjoying and relaxing, facades are often not present (figure 43-44). This creates a sense of an open square. Breaking this kind of boundaries could be considered as enhancing an ‘organic sense’, as retail facades strengthen the thought of being inside a closed shopping mall box.
5.5 CONCLUSIONS

This chapter has identified several relations between attributes, showing different environments for different activities.

Functional aspects seem to focus more on shopping-related activities as the intention of a shopping mall is to shop and buy. These shopping-related activities show a relation with ‘comfort of the known’, in which the consumer knows his shopping trip is a success, no matter what happens. Orientation is maximized and performed effort is minimized, using strong visual lines and many elevation points to vertically circulate. Consumers can directly set visual destinations within the shopping mall and can walk within a straight line towards these destinations.

‘excitement of the new’ has a strong relation with leisure-activities, bringing more attractiveness inside a shopping mall. Whereas functional aspects are focused on shopping and buying, the leisure related activities are focused on enjoy, stay and relax.

These strong differences are also presented within the environment of leisure-related activities. While ‘comfort of the known’ focuses on orientation and the ease of consumers to shop, ‘excitement of the new’ brings new surprises and translates shopping into an experience by itself.

Regarding the studied cases, it seems that all cases varied in whether they emphasized “comfort of the known” or “excitement of the new” and that the assignment is as of how to find a proper balance between these two.

This is complicated by that the kind of features that are considered positive for “comfort of the known” are in turn low valued in achieving “excitement of the new”.

The survey might add to a better understanding as of how to balance between design aspects contributing to “comfort of the known” and “excitement of the new”.

To this end, ‘comfort of the known’ and ‘excitement of the new’ will be used to translate into retail design attributes (chapter 6) that will be used to construct visualizations to be used in the ‘vignette method’ to test for consumers’ valuations of selected design attributes in chapter 7.

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5 Design aspects will be described as attributes from now on. This offers insight in the research process, translating design characteristics into specific attribute levels. These attribute levels will be used in the vignette method (chapter 6).
6 METHODOLOGY
6.1 INTRODUCTION

As discussed before, consumers are processing stimuli both conscious as subconsciously. These stimuli are interpreted in this research as retail design and retail design is thus considered as a collection of space-related aspects. To classify consumer’s actual behavioral response on the retail design, a conjunct method is used. With a conjunct method, the characteristics of a product or service can be analyzed, often by means of vignettes. This method is appropriate to measure the interaction between several design aspects and their influence on the behavioral response of the consumer, both conscious and subconsciously.

To create a thorough analyze, one could say that the conjunct method could be placed within a framework of the possible research methods present (Breidert et.al, 2006), made visible in Figure 31.

Figure 31: Classical framework
Source: Breider et al., 2006
6.2 MEASURING PREFERENCES

There are several methods to investigate consumers’ utility (preferences) for a product. In measuring the utility for a product, one can distinguish between revealed preference methods, stated preference methods and non-preference methods. The revealed preference method is based on the observation of actual made choices of consumers and it assumes that people show their preferences by their actions. The Stated Preference method is based on information extracted from interviews or choice experiments. Because little research has been done on vertical circulation of consumers, stated preference techniques are preferred to collect data concerning consumer preferences through a questionnaire. Another important advantage is that these techniques also allow for the measurement of peoples opinion to non-economic goods, e.g. comfort, behavior.

Within the stated preference methods, there is a direct and an indirect method to investigate consumers’ utility. The direct method is known as the contingent valuation method (CVM). The most important problems of CVM are related to cognitive stress and strategic responses. People experience difficulties in assigning a value or a ranking to a product or service. There is also the risk of strategic bias as people might think they can influence the situation like the price of a cup of coffee. Also, from the conceptual model becomes clear that consumer’s circulation behavior is for a major part based on consumer’s subconscious (figure 8). The consumer is not always aware that he is stimulated by the encountered environment (Chartrand, 2008). Even certain directions to circulate could be activated unconsciously until the desired outcome has been attained. Once activated, the goal to circulate in a specific way is pursued as it were actively chosen (Chartrand, 2008). As consumer’s circulation behavior is for a major part based on consumer’s sub consciousness, it is assumed the indirect method is more reliable than the direct methods or CVM. Because of these problems, here the indirect or the conjoint analysis method (CAM), more specifically the discrete choice method (DCM) is used. The respondent is asked to assess three virtual shopping malls that differ on several characteristics (called attributes) and express his/her preference for either of these.

6.3 DISCRETE CHOICE MODELING (DCM)

The discrete choice method asks to make a choice based on a preference between vignettes, instead of ranking and numbering preferences like conjoint analyses.

The vignette represents the retail design in which the chosen retail design attributes (aspects) constantly vary per vignette. By systematic variation of these attributes distinct retail environments are created, providing insight into the partial benefit of a certain attribute level. Summing up these partial benefits, gives insight in the total benefit of a certain attribute.

The chosen option between the vignettes will have a higher partial benefit compared to the non-chosen vignettes. The idea behind this is that DCM is based on efficiency in choice designs (Kuhfeld, 2010). This model assumes that consumers make choices among alternatives that maximize their perceived utility.
In Kuhfeld (2010), formulas are given to calculate the total benefit of a certain attribute:

\[ \mu = X_i \beta + \varepsilon \]

\( \mu \) = Total benefit of an alternative
\( X_i \) = A row of vectors of attributes defining alternative \( i \)
\( \beta \) = A column vector of \( K \) weights associated with these attributes
\( \varepsilon \) = An erroneous margin which unobserved variation in utility determines

\( \text{Conjunct measuring can also calculate the chance a consumer prefers a certain retail design to vertically circulate, using the following formula:} \)

\[ \text{Exp} (X_i \beta) \]

\[ P(c_i | C) = \sum_{j=1}^{m} \text{Exp} (X_i \beta) \]

\( m \) = Number of alternatives
\( c_i \) = Alternative
\( C \) = Choiceset
\( X_i \) = Vector of alternative attributes
\( \beta \) = Vector of unknown parameters
\( X_i \beta \) = the utility for alternative \( c_i \)

Source: Kuhfeld, 2010

6.4 PARTIAL PROFILE

Simple conjunct measuring makes use of a full profile, which systematically varies all attributes and includes all possible combinations of attribute levels. In order to prevent consumers from an overload of information, there is also a variant in which consumers do not have to see all possible combinations and still creates a reliable outcome. This is called a fractional factorial, in which only a part (fraction) of the combinations possible is shown to the respondent. This part differs for every respondent and the total combination of sets includes the total population. This means less vignettes are necessary in order to still give a reliable outcome (Kuhfeld, 2010).

A fractional factorial is found with an algorithm, looking for the optimal combination of vignettes. Optimal is to use an orthogonal algorithm, being almost 100% efficient. However, some attributes in this research consists of more than 2 attribute levels, and combined with some 2 level attributes is was not possible to find an orthogonal matrix with the existing algorithms. A fractional factorial also shows a problem for this research as it limits in practice the number of attributes that might be systematically varied in a statistical design. Because 8 attributes varying in a choice experiment is considered maximum, another algorithm had to be looked up. The number of attributes considered in this research was 12. It was decided to systematically vary 8 attributes at a time, being the limit of what consumers can remember within their short-term memory.

To this end a partial profile is used. Within SAS, an algorithm is used to look at the most efficient partial profile possible. This partial profile is attached in the appendix (appendix 3). As a partial profile does not systematically vary all attributes tested, the efficiency is always lower compared to the fractional factorial.
6.5 EXAMPLE 2D VIGNETTES

To explain the steps that were made towards the final virtual shopping malls or vignettes, an example of a set with 2 vignettes is used (Figure 33-Figure 34). It appears that the two vignettes have differences could be found in the attribute levels. Combining these aspects using a standard ‘background’ creates a totally different environment.

**Figure 33:** Example 2d vignette.  
*Source: own*

**Attributes**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daylight roof:</td>
<td>Yes</td>
</tr>
<tr>
<td>Spatial form:</td>
<td>Orthogonal</td>
</tr>
<tr>
<td>Materials/colors:</td>
<td>Cold, concrete</td>
</tr>
<tr>
<td>Puller:</td>
<td>Fashion</td>
</tr>
<tr>
<td>Signing:</td>
<td>Theme signing</td>
</tr>
<tr>
<td>Visual lines</td>
<td>20%</td>
</tr>
<tr>
<td>Art:</td>
<td>No</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Figure 32:** Example 2d vignette.  
*Source: own*

**Attributes**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daylight roof:</td>
<td>Yes</td>
</tr>
<tr>
<td>Spatial form:</td>
<td>Orthogonal</td>
</tr>
<tr>
<td>Materials/colors:</td>
<td>Warm, brickwork</td>
</tr>
<tr>
<td>Puller:</td>
<td>Media</td>
</tr>
<tr>
<td>Signing:</td>
<td>Store signing</td>
</tr>
<tr>
<td>Visual lines</td>
<td>80%</td>
</tr>
<tr>
<td>Art:</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Yes</td>
</tr>
</tbody>
</table>
6.6 3D DISCRETE CHOICE MODELING

This research improved existing ways of generating vignettes. Instead of making use of 2 pictures, a consumer is confronted with 3d virtual tours. On every floor, consumers can look around, making their preference based on an overview of a realistic shopping mall, rather than the use of pictures.

There are several advantages for using this type of research:

✓ Circulation of consumers inside a shopping mall could be seen as more dynamic than static. Creating an overview of a total shopping mall, would improve the reliability of the research, as circulation patterns are not based on one image, but on a shopping mall in total.
✓ Consumers are more sensitive for pictures, compared to text, in vignettes (Warners, 2010).
✓ The interaction between consumer and shopping mall improves the measurement of consumer’s experience. The consumer looks around and is influenced by the total shopping mall, while circulating.
✓ The 3d method does not ask why consumers prefer choose a certain direction, but let them circulate through the shopping mall.

Procedure:

Consumers start the virtual tour with a complete automatic 360 degrees on the ground floor, before entering the next floor. When this rotation is finished, the image stops and consumers can freely rotate and look around at this floor.

When finished, consumers visit the 1st floor and 2nd floor, having a total overview of the shopping mall.

After visited and looked around in this shopping mall, consumers visit another 2 shopping malls and choose their preference between these three shopping malls in relation to vertical circulation.
6.7 EXAMPLE 3D VIGNETTES

The vignettes are based on a panoramic view of the environment. Instead of only one picture, consumers are confronted with a virtual tour on three floors. Shopping malls are preferred based on their total context, rather than one image (Figure 35-Figure 37).

Example 1:

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Attribute level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials/colors</td>
<td>Gradient; cold to warm</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>Express stairway</td>
</tr>
<tr>
<td>Glass roof</td>
<td>Yes</td>
</tr>
<tr>
<td>Visual lines</td>
<td>20%</td>
</tr>
<tr>
<td>Crowding</td>
<td>Upper floor</td>
</tr>
<tr>
<td>Anchor upper floor</td>
<td>Gastro boulevard</td>
</tr>
<tr>
<td>Signing</td>
<td>Theme signing</td>
</tr>
<tr>
<td>Art upper floor</td>
<td>Yes</td>
</tr>
<tr>
<td>Spatial form</td>
<td>Organic</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>No</td>
</tr>
</tbody>
</table>

Figure 35: Example 3d vignette. Source: own
### Example 2:

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Attribute level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials/colors</td>
<td>Cold</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>Single stairway</td>
</tr>
<tr>
<td>Glass roof</td>
<td>Yes</td>
</tr>
<tr>
<td>Visual lines</td>
<td>20%</td>
</tr>
<tr>
<td>Crowding</td>
<td>Upper floor</td>
</tr>
<tr>
<td>Anchor upper floor</td>
<td>Fashion</td>
</tr>
<tr>
<td>Signing</td>
<td>Theme signing</td>
</tr>
<tr>
<td>Art upper floor</td>
<td>No</td>
</tr>
<tr>
<td>Spatial form</td>
<td>Orthogonal</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Figure 36: Example 3d vignette. Source: own*
**Example 3:**

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Attribute level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials/colors</td>
<td>Warm</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>Single stairway</td>
</tr>
<tr>
<td>Glass roof</td>
<td>Yes</td>
</tr>
<tr>
<td>Visual lines</td>
<td>80%</td>
</tr>
<tr>
<td>Crowding</td>
<td>Ground floor</td>
</tr>
<tr>
<td>Anchor upper floor</td>
<td>Media</td>
</tr>
<tr>
<td>Signing</td>
<td>Store signing</td>
</tr>
<tr>
<td>Art upper floor</td>
<td>Yes</td>
</tr>
<tr>
<td>Spatial form</td>
<td>Orthogonal</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Figure 37: Example 3d vignette. Source: own*
6.8 CONSTRUCTING 3D VIGNETTES

In order to execute the 3d vignettes, several software programs were applied.

Sketch and draw: Sketchup

For the sketching and drawing of the 3d animation, a non-existing shopping mall is used in Sketchup. An existing shopping mall would already influence consumers who could have some prior experiences with the specific shopping mall.

To produce and design a non-existing shopping mall, the model of the future Forum Rotterdam is used with permission of Multi Developments and adapted. This model only shows the mass of the shopping mall in which the attributes not yet have been designed (Figure 38).

Rendering: Render(in)

To render the images into a realistic frame, Render(in) was used, which renders the sketches from sketchup into the images used for this research (Figure 39-Figure 40).

Photoshop: Stitching and adjusting images

To perform 3d, panoramic images were stitched together. Before stitching, each image had to be adapted in Photoshop so that continuous straight lines do not become kinked when the images are stitched. All renders have to be individually adapted to each other based on brightness and contrast. At the end, Photoshop is used to stitch each of
the images into a smooth panoramic view when joined together (Figure 41).

\[ Image \]

KrPano: Flash program for virtual tours

Krpano (Krpano Viewer 1.0.8.12, build 2010-11-24) is a small, versatile and high-performance viewer for interactive 3D panoramas on the web. It is based on the cross platform Adobe Flash Player, the world’s most popular software platform for interactive software. Krpano itself creates many possibilities, such as type of lens, automatic rotation and other options. For the virtual tours, most important options of the program used, are:

- Cubic panorama, translating cubes into 3d surroundings
- Automatic rotation, stopping after one full 360 degrees rotation
- Hotspots, used to link virtual tours to each other

Server: hosting virtual tours

The server at schinkeldeweerd.info served as host for the virtual tours. With a hyperlink within Netq, the virtual tours could be loaded and viewed sing the web.
6.9 CONCLUSIONS

With a conjunct method, the characteristics of a product or service can be analyzed, often by means of vignettes. Here the discrete choice model is chosen, because this is an appropriate method to measure the interaction between several design aspects and their influence on the behavioral response of the consumer, both consciously and subconsciously. The discrete choice method asks to make a choice based on a preference between vignettes, instead of ranking and numbering preferences like conjoint analyses.

The vignette represents the retail design in which the chosen retail design attributes (aspects) constantly vary per vignette. By systematic variation of these attributes distinct retail environments are created, providing insight into the partial benefit of a certain attribute level. Summing up these partial benefits, gives insight in the total benefit of a certain attribute. To his end, 3d vignettes were used, creating panoramic virtual tours, in which consumers encounter the environment in an inter-active way, visiting all three floors. As vertical circulation is more dynamic than static and has a strong relation between several floors, this type of methodology seems to be most appropriate. To test all attributes within these 3d vignettes, a partial profile is made. This partial profile conducts 45 shopping malls, in which per shopping mall 8 attributes of the 12 systematically vary. These 45 shopping malls are divided into 15 sets with 3 shopping malls per set (appendix 3). A consumer will be confronted with one set in order to judge the encountered environment and give a preferred environment to stimulate vertical circulation.
DESIGN ATTRIBUTES
7.1 INTRODUCTION

This chapter elaborates on the translation of the retail design aspects found in literature and case-studies, into vignettes. It shows how the precedents of the case-study environments are used to design the vignettes, to investigate the preference of consumers in the survey.

Before designing the attributes, the main design characteristics are defined in the following paragraph.

7.2 MAIN DESIGN CHARACTERISTICS

In Discrete Choice Modeling, the main design aspects are referred to as attributes. Attributes (aspects) found in literature and expert-interviews (chapter 4) were looked for their presence in practice (chapter 5). These design aspects will be visualized in the remaining of this study and are thus referred to as attributes.

Restrictions

Visual restrictions

Using the vignette method in the proposed way does not support all attributes, as only the attributes can be measured of which consumers are visually confronted with. This seems to be most relevant for the functional aspects, such as routing and functional lay-out. The method uses more than one frame, which makes it possible to look around on every floor. Consequently, it does offer certain possibilities to measure functional aspects. It was thought that presence of an anchor store, or type of circulation could be more easily visualized and were thus eligible, whereas the exact position of elevation points or source-points was discarded for inclusion in the vignettes.

Time restrictions

There is a strong time restriction as well, as this is a master thesis project. To produce 813 renders within a certain time frame, no detailed information could be included of an attribute. The virtual shopping malls should therefore be more considered as conceptual images of what a shopping mall could consist off, rather than an fully developed virtual shopping mall. Due time restrictions, artificial lighting and a detailed functional lay-out could not be present within the model. This would need more work and could be subject of further research. As this is an explorative research, it is more interesting to look at main effects of a quite high number of attributes and at some interactions between several attributes, than to expect detailed information of a single attribute.
**Final selection of attributes**

The final selection of the design attributes is based on the environments ‘comfort of the known’ and ‘excitement of the new’, keeping in mind the aforementioned limitations. As shown in literature and case-studies, these two environments show a strong significant difference. In order to test these environments, the following attributes will be conceptualized.

- Daylight: the amount of daylight entering from the roof
- Crowding: the amount of consumers at the upper floor
- Puller: the type of anchor located at the upper floor
- Visual lines: the visual sightlines between ground floor and other floors
- Art: the presence of art objects at the upper floor
- Spatial form: the spatial form of the mall
- Signing: the type of signing used for the upper floor
- Vertical parcelation: the orientation of individual buildings
- Materialization/color: type of materials/colors used in the shopping mall
- Type of vertical circulation: type of stairways used in order to vertically circulate
- Human scale: the human scale of the shopping mall
- Alternatives: the alternatives present on the ground floor

**7.3 DESIGNING ATTRIBUTES**

As explained before, a total of 45 shopping malls were designed to investigate the preference of consumers. These 45 shopping malls consist of 15 sets with 3 shopping malls per set. A consumer would only do 1 set of three shopping malls. The structure of the remainder of this chapter per attribute is as follows:

- 1\textsuperscript{st} part: description of the attribute and its levels
- 2\textsuperscript{nd} part: references (case-study images)
- 3\textsuperscript{rd} part: design of vignette
A. DAYLIGHT

Attribute level 1: Daylight entrance from roof

Both examples (A1, A2) show the dominating role of daylight within retail design.

The daylight within Westfield (figure 55) creates a more open and unforced feeling to vertically circulate compared to a closed box. When emphasizing the connection with outside, it seems to feel more like outside or public space, where consumers freely circulate and enjoy, without having the urge to shop and leave.

Myzeil (figure 57) definitely made use to pull down the daylight to make the express stairway more attractive than the secondary stairway. Based on the flow of passersby, more consumers are vertically circulating using this express stairway compared to the secondary stairway.

Attribute level 2: No daylight entrance from roof

Artificial lighting has been often used as supportive lighting, as shown in Myzeil (figure 56). Westfield has also used artificial lighting in a way to give a kind of ‘protection and exclusiveness’ when shopping for luxury goods in ‘The Village’ (figure 56).

In the vignettes this is visualized.
B. VISUAL LINES

Attribute level 1: 80% Visual lines ground floor- upper floor

Both examples (B1, B2) show a strong relation between visual lines and anchor stores.

As Forum Duisburg a strong visual connection is made to the anchor Saturn located at the upper floor. Westfield uses the visual lines to attract consumers towards ‘The Village’ (figure 63).

Sight lines emphasize new anchors located on the upper floor, rather than anchors already confronted at the ground floor.

These visual lines make it possible to set a certain destination and to orientate.

Attribute level 2: 20% visual lines ground floor- upper floor

Consumers feel attracted to daylight and need a form of excitement and surprise to be stimulated. In practice, this could be done by decreasing orientation by closing up and pulling down daylight, attracting consumers to vertically circulate, although a visual relation with a certain destination has to be present all the times.

In the vignettes this is visualized.
C. SIGNING

Attribute level 1: Theme signing

Identifying a floor using a theme, could strengthen the anchor power of a certain floor and cluster. Another advantage is that it prevents consumers from an overload of information, which makes consumers feel uncomfortable and insecure (Sinke, 2010). Identifying clusters by means of a theme and with the help of pictures (figure 67, 69) could emphasize the anchor power at the specified floor. This might stimulate consumers to vertically circulate. Clustering is probably most relevant for comparative shopping, and fun-shoppers are likely to be most attracted to theme signing.

Attribute level 2: Individual store signing

Individual store (figure 68, 70) signing might not suggest strong clustering, but does make orientation optimal. Consumers can directly set the destination towards their goal. It is likely run and goal-oriented purchases are more in need of individual store signing, rather than fun-shoppers, who gradually discover a mall (de Bont, 2010).

In the vignettes this is visualized.
D. VERTICAL PARCELATION

Attribute 1: Vertical parcelation at 10 facades

Vertical parcelation brings a vertical diversity within the shopping mall. At Forum Duisburg (figure 71), buildings create an own identity referring to a certain pattern of street profile.

In literature and practice diversity offers both orientations as surprise, offering every time something new (de Bont, 2010).

For vertical circulation, vertical parcelation is most interesting, attracting the eye towards above. By creating vertical buildings, no clear borders between new floors are defined and consumers are likely to enter a new floor more unconscious.

Attribute 2: No vertical parcelation

Without vertical parcelation, the shopping mall often brings a kind of unity.

This kind of unity does not offer much surprise or strong orientation, as all facades seem to be the same.

It is likely consumers are not attracted to stimulate vertical circulation based on the facades of the shops.

In the vignettes this is visualized.
**E. HUMAN SCALE**

<table>
<thead>
<tr>
<th>Attribute 1: Human scale, 4.5 meter store heights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Although adherence to human scale has been advocated in literature (Warners, 2010; Bodegraven, 2004), the cases studies showed a strong division between human scale for places to stay for leisure and human scale for places to buy. When consumers are dining or enjoying on a certain place, consumers need to feel protected and comfortable doing so. For these places, human scale is necessary.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute 2: Non-human scale, 9 meter store heights</th>
</tr>
</thead>
<tbody>
<tr>
<td>For places to buy, non-human scale plays a moderating role. In order to vertically circulate, consumers seem to be more attracted to imposing architecture with non-human scales (figure 76)</td>
</tr>
</tbody>
</table>

In the vignettes this is visualized.

---

**Figure 75**: Example E.1, Duisburg. Source: own

**Figure 76**: Example E.2, Myzeil. Source: own

**Figure 77**: Example vignette E.1. Source: own

**Figure 78**: Example vignette E.2. Source: own
As already stated in literature, human variables also have influence on consumer behavior (Turley and Milliman, 2000).

In practice, strong circulation patterns could be recognized by a stream of consumers as ‘people attract people’. In order to stimulate vertical circulation, crowding on the upper floor compared to the current floor should attract more consumers to vertically circulate.

‘Empty’ floors for shopping malls are a severe problem. As shown in figure 80, this part of the upper floor has little passersby throughout the entire day; although this kind a reference photos could have been taken from other cases as well.

In the vignettes this is visualized.
G. ANCHOR

Attribute 1: Gastro Boulevard

Gastro Boulevard represents a certain form of leisure as anchor. It is focused on places to stay, enjoy and relax, rather than places to shop. To do so, the Gastro boulevard has a more open lay-out and has a more naturally expression, rather than ‘built’. It does not make use of boundaries between ‘stores’ and does show a lot of variety. It could present a more open market square, where consumers could lounge, eat and drink. Breaking boundaries lowers the effort to enter a certain store and does also creates direct visual lines between consumers and ‘stores’ at the upper floor. The case-studies show a relation between the presence of green and leisure. In literature, it is also acknowledged green causes a strong behavioral approach for consumers.

In the vignettes this is visualized.
Attribute 3: Media

Besides Fashion, Media is often strongly present in shopping malls. Within Germany (Myzeil, figure 87), Saturn even occupies entire floors.

Within Westfield, the Apple store is present as a strong anchor present on the upper floor. Little research has been done about media inside shopping malls. In addition to fashion, media is often used for comparative shopping. What fashion is for women, could be media for men.

In the vignettes this is visualized.
Attribute 2: Fashion

Fashion dominates inner-city retail, as comparative shopping is the most dominant motive to shop within inner-cities (Bolt, 1995).

Fashion and comparative shopping is often related to fun-shoppers, who receive more hedonic pleasure from shopping. More pleasure could lead to more time and money spent, making fashion one of the most interesting anchors present to stimulate consumer circulation. New anchors presented on upper floors, often present Fashion. Examples could be found in Westfield and Myzeil.

In the vignettes this is visualized.
Attribute 1: Art object upper floor

Art could be seen as integrated within the design. When the focus lies on vertical circulation of consumers most art is translated using in-motional artificial lighting (figure 93 & 94). A rich variation of colors could attract consumers to approach and attracts the eye more quickly (Bodegraven, 2004).

In practice, The Sting in Eindhoven has used it to attract consumers to vertically circulate, making it more attractive. At Palladium, this tunnel of light offers a certain form of leisure, leading away from the activity vertical circulation.

As both literature and practice are positive on this type of art, it is likely consumers are stimulated to vertically circulate using art.

Attribute 2: No art object upper floor

No art object at the upper floor immediately shows a kind of boredom, compared to the other example without art object. It shows little variety and there is a stronger focus on the functionality of a stairway.

In the vignettes this is visualized.
I. SPATIAL FORM

Attribute 1: Orthogonal forms

Straight lines are important to achieve economy of movement, so that consumers spend the least amount of effort walking in a straight line from destination to destination.

In theory, orthogonal forms offer most orientation for consumers. As shown in figure 98, consumers can set easily a certain destination.

However, stimulating vertical circulation does show other results in the case-studies. Almost no case-studies have only orthogonal forms, raising the question whether organic forms are more interesting to stimulate a certain form of vertical circulation.

In the vignettes this is visualized.
I. SPATIAL FORM

Attribute 2: Organic forms

In literature organic forms seem to be most exciting, as consumers prefer curved lines compared to straight lines. (Bodegraven, 2004; Van den Bergh, 2008).

Organic forms are more natural and could attract and guide consumers towards the upper floor.

In practice, Westfield (figure 103-104) makes use of organic forms in both roof and openings. The roof seems to be more organic and does create attention by its uniqueness.

In the vignettes this is visualized.
**J. ALTERNATIVES**

**Attribute 1: No Alternatives on current floor**

As described in literature, strong main path dominance is present in circulation behavior of consumers (Bitgood, 2009). As the main path is dominant for actual routing of consumers, one of the instruments to optimize the intended routing is to minimize alternatives. The fewer the alternatives, the better the routing. When too much routing is present, the consumer will lose the clearness of the concept and will show avoidant behavior (de Bont, 2010).

For vertical circulation, Westfield has used the most interesting option to stimulate vertical circulation. It determines consumer circulation by creating only one option: circulate towards the upper floor. From this entrance, the upper floor is positioned as ground floor.

**Attribute 2: 2 Alternatives on current floor**

The opposite of the option at Westfield is chosen at Forum Duisburg. As consumers enter the mall, the stairway has not been positioned as the ‘main path’. The focus is more on horizontal circulation offering more alternatives on the current floor, decreasing the likeliness consumers will vertically circulate.

In the vignettes this is visualized.
<table>
<thead>
<tr>
<th>Attribute 1: Double stairway</th>
</tr>
</thead>
<tbody>
<tr>
<td>A double stairway includes multiple options to vertically circulate. When consumers are offered more entrances and exits to other floors, consumers are likely to feel less forced upon. It minimizes effort to exit or enter a new floor and, it is likely consumers are stimulated to vertically circulate using a double stairway. In the vignettes this is visualized.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute 2: Express stairway</th>
</tr>
</thead>
<tbody>
<tr>
<td>This kind of stairway forces consumers upstairs by skipping several floors and directly circulates from ground floor to upper floor. In this case, consumers only have to decide once to vertically circulate. This kind of stairway is supposed to stimulate consumers to circulate vertically. In the vignettes this is visualized.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute 3: Single stairway</th>
</tr>
</thead>
<tbody>
<tr>
<td>When consumers are confronted with only one stairway, they are forced to leave the floor at this point. To enter new floors, consumers have to perform a lot of effort. As it is against the rules of economy of movement, it is likely consumers are influenced negative in order to vertically circulate. In the vignettes this is visualized.</td>
</tr>
</tbody>
</table>
Attribute 1: Warm materials; brickwork and light natural stone floors

Warm colors are often combined with a leisure activity, stimulating consumers to stay, rather than to circulate. Cold colors are thought to enhance retail profits.

For the entire shopping mall, Forum Duisburg has made use of warm materials. It creates an impression of walking within a street, instead of a shopping mall. These warm colors feel comfortable, but it raises the question whether these types of concepts and colors could also be implemented at shopping mall with more layers. In practice, Myzeil and Piazza uses cold colors to attract consumers, while Palladium uses more warm colors in combination with the use of glass. In the vignettes, the choice has been made to use Forum Duisburg as reference for warm colors and materials. This is identified in using natural stone floors and brickwork.

In the vignettes this is visualized.
Attribute 2: Cold materials: White concrete, dark natural stone floors

Cold colors are often combined with modern architecture. Cold colors might be associated with a certain ambiance as in a museum. The imposing architecture does attract consumers to vertically circulate in Myzeil.

In the vignettes this is visualized.
Attribute 3: Gradient; cold materials/colors with the use of warm wood at the upper floors

A gradient of colors and materials is present in Westfield.

As consumers are confronted with imposing architecture and cold colors/materials on the ground floor, consumers are confronted with warm colors while circulating vertically.

The higher the floor, the more wood has been used. It is likely consumers are stimulated to vertically circulate by modern architecture and cold/colors and materials. As a reference, Westfield is used. Westfield makes use of wood to identify leisure positions at the upper floor.

After vertically circulating, the wooden gradient creates a strong diversity and is likely to attract the eye.

Instead of the warm or cold colors, the gradient combines both, attracting both the consumer to vertically circulate and stay.

In the vignettes this is visualized.
8.1 INTRODUCTION

This chapter elaborates on the survey for consumers. The first part describes the procedure of the survey; the second part explains the content of the survey and is based on former chapters.

8.2 PROCEDURE

For the survey an interceptive approach has been used; interception of consumers occurred at shopping mall Alexandrium in Rotterdam. An interceptive approach is preferred to an online survey, because of the situational context and personal setting. Consumers are likely to answer and react different on a retail environment when actually shopping instead of filling out an internet questionnaire at home or at work.

Most important reason to use an interceptive approach is the situational context which is present when consumers shop.

- Reason of purchase: do I buy a gift or groceries?
- Physical surrounding: The retail design encountered
- Social environment: The presence of other persons/friends/family
- Dimension of time: Time pressure as well as the time of shopping (day or evening)
- Budget: What does a consumer has to spend?

Besides the situational context, consumers receive actual emotions from shopping when active inside a shopping mall. They receive an amount of pleasure/arousal, or get stressed / bored by the design of the shopping mall.

Information about the questionnaire

Location: Shopping mall Alexandrium Rotterdam
Date: 16-12-2010 – 21-12-2010
Time: ± 09:30 – ±17:30 (2x until 21:00)
Total valid respondents: 226
Target group: All consumers present
Equipment: 3 tables, 4 laptops, Wi-Fi
Position within Alexandrium: Intersection point

Figure 134: Floor plan Shopping mall Alexandrium
Source: Own
8.3 CONTENT

The questionnaire itself can be found in appendix 4 of this report. The content of the questionnaire consists of 4 parts:

✓ I: BACKGROUND INFORMATION
   o Social factors (Organism)
   o Demographic (Organism)

✓ II: PREFERRED CIRCULATION BEHAVIOR OF THE CONSUMER
   o Preferred circulation behavior (Response) in relation to the environment (Stimuli)

✓ III: ADDITIONAL INFORMATION
   o To identify psychological factors (Organism)
   o To identify Situational factors (Organism)

✓ IV: CLOSURE

I: BACKGROUND INFORMATION

The background information identifies the social factors and demographics of consumers. Both are mentioned in chapter 2 as factors that influence consumer behavior.

The social factors are based on influences from consumer’s environment. To identify these factors, questions are asked about the cultural background and type of household.

To verify their actual social class, demographics are used. This part asks questions about age, gender, income, education and status.

II: PREFERRED CIRCULATION BEHAVIOR OF CONSUMER

This part of the chapter asks about the preferred circulation behavior of the consumer in virtual retail environment shown to them. As mentioned in chapter 6, 3d vignettes are used to ask for a consumer’s preference for a shopping mall. This part starts with an explanation for the consumers.

‘You are about to see a series of three shopping malls. After viewing the shopping malls, three questions will be asked:

- In which shopping mall are you most inclined to visit the ground floor as well as the other floors? [translation of: In welk winkelcentrum bent u het meest geneigd om niet alleen de begane grond te bezoeken, maar ook de andere verdiepingen te bezoeken?]

- Of which shopping mall, does the ground floor invites you most to take the stair to the next floor? [translation of: Van welk winkelcentrum vindt u dat de begane grond het meest uitnodigt om de trap naar de volgende verdieping te nemen?]

- Of which shopping mall does the upper floor attracts you most? [translation of: Van welk winkelcentrum spreekt de bovenste verdieping u het meeste aan?]

After the introduction, consumers were linked to the virtual tours of three shopping malls. An example of a series of three shopping malls could be seen by clicking on the following link:

http://ben.schinkeldeweerd.info
When starting the virtual tours, the consumer is guided through the virtual tours with the following explanation:

‘You are about to see three shopping malls in which you can look around at three locations per shopping mall. You will visit all 3 shopping malls and thereafter you will be asked to answer the just mentioned questions about your preferred shopping mall’.

As described in chapter 6, consumers start with an automatic 360 degrees rotation on the ground floor and are free to look around after the rotation. When finished on this floor, consumers click the red button to enter the next floor and so on. Between the shopping malls the consumer is guided to the next shopping mall.

As explained in chapter 6, 15 sets of three shopping malls were developed. Since the visual tour through three shopping malls takes about 5-10 minutes, only one set of three malls is shown to consumers. A consumer is randomly assigned to one of the 15 sets. When finished with the virtual tour, consumers were questioned about their preferred environment, using the three questions mentioned before. For a respondent’s convenience, every question used cues by showing an image (figure 135) in combination with the question.

These three questions are the main questions for the discrete choice analyses performed in this study. The questions are used to identify the preferred circulation behavior (Response) in relation to the environment (Stimuli). In addition to preferred circulation behavior when consumers are present at the ground floor, it also asks for the actual attractiveness of the upper floor, thought to analyze the what shopping mall is considered most rewarding according to consumers.

As pleasure is presumed to lead to an additional time expenditure, multiple discrete choice questions were asked, to look at relations between vertical circulation and actual pleasure received.
III: ADDITIONAL INFORMATION

After the visual tours and the subsequent questions, additional information is asked about selected situational influences and psychological factors.

The situational factors, based on literature used in chapter 2, identified factors that influence consumer behavior. This was done with 4 questions:

- Reason of purchase: do you have an aim and if so, what?
- Social environment: With whom are you shopping?
- Dimension of time: What is your time spending?
- Budget: What is your money spending?

Identifying psychological factors are more focused on a certain attitude and personality of the consumer itself. The questionnaire asked about what type of shops consumers like to visit the shopping mall, and whether or not the respondent comes home with more planned or unplanned purchases.

Attitude towards shopping is asked for by asking consumers to value the pleasure they derive from shopping. The perceived pleasure and arousal is subsequently asked for using validated scales from Meesschaert (2006) and according to the Pleasure Arousal Dominance theory from chapter 2. Both the pleasure (see table 13) and arousal scales consist of six word pares are used. The consumer needs to position himself between the word pares, according to his current emotional state.

<table>
<thead>
<tr>
<th>L3</th>
<th>L2</th>
<th>L1</th>
<th>0</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpleasant</td>
<td>L1</td>
<td>L2</td>
<td>L3</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td>Unhappy</td>
<td>Satisfied</td>
<td>Comfortable</td>
<td>Relaxed</td>
<td>Hopeful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>Satisfied</td>
<td>Comfortable</td>
<td>Relaxed</td>
<td>Hopeful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annoyed</td>
<td>Satisfied</td>
<td>Comfortable</td>
<td>Relaxed</td>
<td>Hopeful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bored</td>
<td>Satisfied</td>
<td>Comfortable</td>
<td>Relaxed</td>
<td>Hopeful</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desperate</td>
<td>Satisfied</td>
<td>Comfortable</td>
<td>Relaxed</td>
<td>Hopeful</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13. Word pares pleasure
Source: Meesschaert, 2006

IV: CLOSURE

The last part of the questionnaire is the closure. Consumers can give comments about the questionnaire and were asked whether they want to receive a summary of the results of this study. They were also asked if they would like to participate in a price lottery, which was used to stimulate the participation of consumers. At the end all consumers were thanked for participation and were wished a happy shopping trip.
8.4 CONCLUSION

The survey makes use of an interceptive approach, in which consumers were asked to participate in a survey during their visit to Alexandrium shopping mall. An interceptive approach is used, as it is more reliable being based on the actual presence of situational influences such as budget and time expenditure, compared using a questionnaire online. Within six days (16-12-2010 / 21-12-2010), 226 valid respondents were collected within the shopping mall Alexandrium, making use of several laptops.

The content of the questionnaire is focused on identifying the stimuli (encountered environment), the organism (how consumer’s perceive the environment) and the actual response. The background information is used to collect information about the type of people, determined by their social factors and demographics. The additional information is used to identify how consumers spend their money and time (situational influences) and what kind of emotion is present (psychological factors). These questions are used to identify the personal circumstances that influence consumer behavior.

The virtual tours through three shopping malls covers the encountered environments as designed in the virtual tours (i.e. the vignettes) and the response to these environments identified the preferred circulation behavior of the consumer.
THE RESULTS
9.1 INTRODUCTION

This chapter describes the results of the quantitative consumer questionnaire. First the results of the descriptive statistics are presented. The descriptive part is sub classified into three parts:

**Type of people**: the type of people is defined by the demographics, asked at the part ‘Background information’ within the survey.

**Money and time spent**: this part is defined by the situational influences of the consumer, asked at the part ‘Additional information’ within the survey. It indicates how much time and money is spent, on what and with whom.

**Emotion**: this part is defined by the psychological factors, asked at the part ‘Additional information’ within the survey. It shows what kind of emotion is present at the current time.

T-Tests, Onaway ANOVAs, Crosstabs and Bivariate correlation have been used looking for relations between variables, using SPSS (version PASW18).

Second, the results of the Discrete Choice Analysis of the design attributes are presented, using the statistical program SAS (version 9.2). The outcomes of the discrete choice experiments result answering the research questions:

*To what extent do consumers’ experiences of the encountered environment influence their preferences for vertical circulation, which is thought to indirectly affect retail profits at upper floors inside a shopping mall?*
9.2 DESCRIPTIVE STATISTICS

9.2.1 TYPE OF PEOPLE (Table 14)

**Age:** Almost 50% of all consumers whom participated in the survey are younger than 26.

**Gender:** Less males participated in the survey (43,4%), compared to females (56,6%).

**Education:** Almost 1/3 of the participants is still studying (Scholar, 13,7%; Student, 21,7%). 46,5% is working and less than 2% is unemployed.

**Household:** The number of respondents living at home with their parents (30,1%) and together with partner (29,6%) are significant higher compared to the other groups.

**Income:** About one third of the people are not willing to answer this question (30,5%). Of the people that give an answer, most earn more than 1.750 per month.

**Cultural background:** 76,5% has a Dutch background, while 23,5% has a foreign background and stem from over 11 cultures. The most strongly presented ethnic subgroups are from Surinam (5,8%) and Morocco (3,1%).

**Conclusion:** These variables seem to be strongly related with each other, showing the significant importance of young people shopping. As a large group of participants are <26 years old (45,1%), it is likely that a majority of these participants is still studying (35,4%), Living at home with their parents (30,1%) and earning less than 1.100 per month or income is not of importance (19,9%). Another large group may be characterized as working (45%), living together with partner (29,6%) and earning more than 1.750 per month (38,1%). Since these subgroups are only post-hoc identified, these are considered as tentative subgroups that have to be further investigated.

<table>
<thead>
<tr>
<th>AGE</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>102</td>
<td>45,1</td>
</tr>
<tr>
<td>26-35</td>
<td>26</td>
<td>11,5</td>
</tr>
<tr>
<td>36-45</td>
<td>20</td>
<td>8,8</td>
</tr>
<tr>
<td>46-55</td>
<td>33</td>
<td>14,6</td>
</tr>
<tr>
<td>56-65</td>
<td>32</td>
<td>14,2</td>
</tr>
<tr>
<td>&gt;65</td>
<td>13</td>
<td>5,8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALE</td>
<td>98</td>
<td>43,4</td>
</tr>
<tr>
<td>FEMALE</td>
<td>128</td>
<td>56,6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDUCATION</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>70</td>
<td>31,0</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>75</td>
<td>33,2</td>
</tr>
<tr>
<td>HIGH</td>
<td>81</td>
<td>35,8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCHOLAR</td>
<td>31</td>
<td>13,7</td>
</tr>
<tr>
<td>STUDENT</td>
<td>49</td>
<td>21,7</td>
</tr>
<tr>
<td>WORKING</td>
<td>105</td>
<td>46,5</td>
</tr>
<tr>
<td>UNEMPLOYED</td>
<td>4</td>
<td>1,8</td>
</tr>
<tr>
<td>RETIRED</td>
<td>22</td>
<td>9,7</td>
</tr>
<tr>
<td>OTHER</td>
<td>15</td>
<td>6,6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOUSEHOLD</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALONE</td>
<td>32</td>
<td>14,2</td>
</tr>
<tr>
<td>TOGETHER WITH PARTNER</td>
<td>67</td>
<td>29,6</td>
</tr>
<tr>
<td>TOGETHER WITH ROOMMATE</td>
<td>11</td>
<td>4,9</td>
</tr>
<tr>
<td>TOGETHER WITH PARTNER AND CHILDREN</td>
<td>39</td>
<td>17,3</td>
</tr>
<tr>
<td>ALONE WITH CHILDREN</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>AT HOME WITH PARENTS</td>
<td>68</td>
<td>30,1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INCOME</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1.100 per Month</td>
<td>25</td>
<td>11,1</td>
</tr>
<tr>
<td>1.100 – 1.750 per Month</td>
<td>26</td>
<td>11,5</td>
</tr>
<tr>
<td>1.750 – 3.050 per Month</td>
<td>49</td>
<td>21,7</td>
</tr>
<tr>
<td>&gt;3.050 per Month</td>
<td>37</td>
<td>16,4</td>
</tr>
<tr>
<td>Not of Importance</td>
<td>20</td>
<td>8,8</td>
</tr>
<tr>
<td>Do not want to tell</td>
<td>69</td>
<td>30,5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CULTURAL BACKGROUND</th>
<th>FREQUENCIES</th>
<th>VALID %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>173</td>
<td>76,5</td>
</tr>
<tr>
<td>Surinam</td>
<td>13</td>
<td>5,8</td>
</tr>
<tr>
<td>Moroccan</td>
<td>7</td>
<td>3,1</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>14,6</td>
</tr>
</tbody>
</table>

*Table 14: Type of people*
9.2.2 DESCRIPTIVE STATISTICS: TIME AND MONEY SPEND (Table 15)

**Time spend**: The majority of consumers spends > 1 hour inside the shopping mall (60.7%), rather than visiting the shopping mall <30 minutes (15.9%).

**Budget**: The budget falls into two main categories: < 25 Euros (37.6%) or > 75 Euros (39.8%).

**Branching**: Most favorite shops to visit are clothes and shoes (77.9%-64.2%). Electronics and music and videogames follow. These types of shops are all fun-oriented. Goal-oriented shops such as sport, toys and household are less visited by consumers.

**Aim**: Most consumers mentioned to have an aim for their visit to the shopping mall (65.5%), rather than no aim (34.5%).

**Planned**: While most consumers have an aim for shopping (65.5%), a lot of consumers still come home with more unplanned than planned purchases (40.3%).

**With whom are you shopping**: More consumers than expected in this survey shop alone (32.7%) compared to other subgroups.

**Conclusion**: These variables might be to be strongly related with each other, as two types of consumers might be tentatively differentiated. The first spends much money within little time. The consumer does have an aim and shops for planned purchases, which are often purchased alone. The second profile shops for a long time, spending little money. The consumer does not have an aim other than to shop, and often comes home with unplanned purchases, which are often purchased with friends. In this research, these two types of consumers seem to relate to hedonic shoppers and/or utilitarian shopper, although this kind of profiles have to be further investigated.

<table>
<thead>
<tr>
<th>HOW LONG DO YOU STAY IN THE SHOPPING MALL?</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 minutes</td>
<td>12</td>
<td>5.3</td>
</tr>
<tr>
<td>15-30 minutes</td>
<td>24</td>
<td>10.6</td>
</tr>
<tr>
<td>30-60 minutes</td>
<td>53</td>
<td>23.5</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>79</td>
<td>35</td>
</tr>
<tr>
<td>&gt;2 hours</td>
<td>58</td>
<td>25.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHAT IS YOUR BUDGET FOR TODAY?</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25 Euro</td>
<td>85</td>
<td>37.6</td>
</tr>
<tr>
<td>25-50 Euro</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>50-75 Euro</td>
<td>17</td>
<td>7.5</td>
</tr>
<tr>
<td>&gt;75 Euro</td>
<td>90</td>
<td>39.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BRANCHING Like (in %)</th>
<th>Dislike (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes 77.9</td>
<td>22.1</td>
</tr>
<tr>
<td>Shoes 64.2</td>
<td>35.8</td>
</tr>
<tr>
<td>Household 20.8</td>
<td>79.2</td>
</tr>
<tr>
<td>Sport 20.8</td>
<td>79.2</td>
</tr>
<tr>
<td>Toys 20.8</td>
<td>79.2</td>
</tr>
<tr>
<td>Books 28.8</td>
<td>71.2</td>
</tr>
<tr>
<td>Electronics 39.8</td>
<td>60.2</td>
</tr>
<tr>
<td>Health and Cosmetics 23.5</td>
<td>76.5</td>
</tr>
<tr>
<td>Jewelry 25.7</td>
<td>74.3</td>
</tr>
<tr>
<td>Hobby 22.1</td>
<td>77.9</td>
</tr>
<tr>
<td>Delicacies 19</td>
<td>81</td>
</tr>
<tr>
<td>Music and videogames 31.9</td>
<td>68.1</td>
</tr>
<tr>
<td>Presents 27.9</td>
<td>72.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DO YOU HAVE AN AIM?</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>148</td>
<td>65.5</td>
</tr>
<tr>
<td>No</td>
<td>78</td>
<td>34.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DO YOU COME HOME WITH PLANNED/UNPLANNED PURCHASES?</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned</td>
<td>135</td>
<td>59.7</td>
</tr>
<tr>
<td>Unplanned</td>
<td>91</td>
<td>40.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHIT WHOM ARE YOU SHOPPING</th>
<th>Frequency</th>
<th>Valid percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alone</td>
<td>74</td>
<td>32.7</td>
</tr>
<tr>
<td>Husband/Partner</td>
<td>53</td>
<td>23.5</td>
</tr>
<tr>
<td>Friend(s)</td>
<td>60</td>
<td>26.5</td>
</tr>
<tr>
<td>Family</td>
<td>40</td>
<td>17.7</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>4.1</td>
</tr>
</tbody>
</table>

*Table 15: Time and money spend*
9.2.3 DESCRIPTIVE STATISTICS: EMOTION

Valuation of amount of pleasure received while shopping (figure 136)

Most consumers seem to like shopping, as the majority gives shopping at least a sufficient score of 6+ (82.4%). Within the range between 6-10, most consumers are in between, valuating shopping with an 8 (23.9%).

Current pleasure

In order to define the amount of pleasure received, 6 word pairs are positioned within a matrix. Between individual word pairs, consumers are scaling themselves based on a 7 points likert scale. (table 13). To identify pleasure as a combination of this word pairs, Cronbach’s Alpha has been used. Cronbach’s Alpha defines the reliability of combining these aspects into one ‘pleasure’ scale.

The range of Cronbach’s Alpha is 0 to 1, in which 1 means all word pairs are perfectly associated with the latent concept of pleasure and arousal, respectively. This means if a consumer is more positive at one word pare, the consumer will also be more positive for the other 6 word pares. The Cronbach’s Alpha is 0.886, indicating all word pares have a strong internal consistency. As these word pares are internally consistent, it is reliable to measure pleasure, combining these 7 word pares into one general variable. Most consumers score positive on the pleasure scale, with a mean of 5.61 on a scale of 7 (figure 137)

Conclusion: Most consumers liked shopping and both the concepts of pleasure and arousal were reliable (i.e. internally consistent) measured.
9.3 SIMPLE RELATIONS

Literature shows one of the significant contributions to influence vertical circulation patterns, is to increase time spend inside a shopping mall (Massara, 2009). As more pleasure leads to more time and money spent, the relation between these variables is of importance for this research.

Confirm relation time and money spend \( (X^2 = 164.7, df=136, PC=0.047) \)

The more time spend inside a shopping mall, the more money is spent (figure 138). As more time is spent, the chance of vertical circulation is increased. When circulation of consumers is influenced positive, this could indeed lead to an actual increase in buying behavior.

Confirm relation between pleasure and time spent

It is important that significant relations could be found between time spend and pleasure received in this research. If so, the amount of pleasure received while shopping, could be a main variable to test what type of consumers receive most pleasure, leading to more time spent.

Does pleasure lead to more time spent inside a shopping mall? Crosstabs show there is indeed a significant relation between the variables time spend and the variable valuation amount of pleasure received while shopping. This indicates the higher the valuation of the amount of pleasure received while shopping, the more time is spent \( (X^2 = 68.44, df=36, PC=0.001) \).

Conclusion

The relation between time and money spent, as well as the relation between time spent and pleasure received are confirmed.

The confirmation makes it reliable to use the amount of pleasure received as main variable, affecting time spent, assuming implicitly that it increases the chance to vertically circulate as well.

As different type of people might be associated with different types of consumer behavior, it is further studied what kind of people receives most pleasure from shopping and what kind people do not. To this end, One-Way ANOVAs tests are used.
9.4 ONE-WAY ANOVAs

The One-way ANOVAs test is used to test the descriptive statistics described in paragraph 9.2, to the variable pleasure as described in paragraph 9.3.

Testing all variables to the main variable of pleasure, gives insight in what kind of characteristics belong to consumers whom valuate pleasure the least positive and to consumers whom valuate pleasure the most positive. Creating different profiles is necessary to identify target groups, as different types of consumers are likely to respond different to retail design.

9.4.1 INTRODUCTION ONE-WAY ANOVAs

The One-way ANOVAs test compares the means of variables. With the significance of the Levene’s test, for equality of variances, the reliability of the One-way ANOVAs test is shown. If the Levene’s test is not significant (>0,05), reliable statements can be made based on the One-Way ANOVAs. If the Levene’s test is not significant, the Tukey test is used to identify significant relations (<0,05) between variables.

The ANOVAs shows whether there is significance between the type of groups identified in the variables and the main variable valuation of pleasure received while shopping. All variables mentioned in the descriptive statistics are tested, but not all show significant relations with the main variable. In order to identify tentative profiles and to summarize, only the significant relations found between variables and the main variable are shown.

9.4.2 ONE-WAY ANOVAs TESTS

**One-Way Anova tests : Type of people**

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Valuation amount of pleasure received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor:</td>
<td>Gender</td>
</tr>
</tbody>
</table>

Homogeneity test is not significant (P=0,736)

The Tukey test shows there is a strong difference between the groups ($F = 36,08$, $P=0,000$). Women value shopping significantly higher ($\mu=8,02$), compared to Men ($\mu=6,52$).

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Valuation amount of pleasure received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor:</td>
<td>Type of household</td>
</tr>
</tbody>
</table>

Homogeneity test of variances is not significant (P=0,805)

The Tukey test shows there is a significant difference between the groups ($F = 2,318$, $P=0,044$). Living with roommates or at home with parents value shopping significantly higher ($\mu=7,91$), compared to living alone with children ($\mu=6,78$).
<table>
<thead>
<tr>
<th>Independent variable: Valuation amount of pleasure received</th>
<th>Factor: Net income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogeneity test of variances is not significant (P=0.963)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups (F = 2.696 PC=0.02). Earning less than 1.100 per month value shopping significantly higher (µ=8.04), compared to earning &gt;3050 (µ=6.81).</td>
<td></td>
</tr>
</tbody>
</table>

**One-Way Anova tests : Time and money spend**

<table>
<thead>
<tr>
<th>Independent variable: Valuation amount of pleasure received</th>
<th>Factor: Time spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogeneity of test is not significant (P=0.660)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a difference between the groups (F = 2.85, PC=0.025). Consumers spending more than 2 hours within the shopping mall, value shopping significantly higher (µ=7.59), compared to consumers spending 15-30 minutes (µ=6.33).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable: Valuation amount of pleasure received</th>
<th>Factor: Clothing stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogeneity test of variances is not significant (P=0.056)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups (F = 16.849 PC=0.000). Consumers whom prefer to visit clothing stores value shopping higher (µ=7.65), compared to consumer’s that don’t prefer to visit clothing shops (µ=6.38).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable: Valuation amount of pleasure received</th>
<th>Factor: Shoe stores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogeneity test of variances is not significant (P=0.109)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups (F = 19.315 PC=0.000). Consumers whom prefer to visit stores selling shoes value shopping higher (µ=7.79), compared to consumer’s that don’t prefer to visit shops that sell shoes (µ=6.62).</td>
<td></td>
</tr>
<tr>
<td>Independent variable:</td>
<td>Value pleasure received while shopping</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>Factor:</strong></td>
<td>Electronics</td>
</tr>
<tr>
<td>Homogeneity test of variances is not significant (P=0,192)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups ($F = 5,168 \ PC=0,024$). Consumers whom do not prefer to visit electronic stores value shopping higher ($\mu=7,71$), compared to consumer’s that do prefer to visit electronic shops ($\mu=7$).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable:</th>
<th>Value pleasure received while shopping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor:</strong></td>
<td>Jewelry</td>
</tr>
<tr>
<td>Homogeneity test of variances is not significant (P=0,875)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups ($F = 8,570 \ PC=0,004$). Consumers whom prefer to visit a jewelry value shopping higher ($\mu=8,02$), compared to consumer’s that do not prefer to visit jewelry ($\mu=7,14$).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable:</th>
<th>Value pleasure received while shopping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor:</strong></td>
<td>Health and cosmetics</td>
</tr>
<tr>
<td>Homogeneity test of variances is not significant (P=0,202)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups ($F =16,956 \ PC=0,000$). Consumers whom prefer to visit health &amp; cosmetics value shopping higher ($\mu=8,32$), compared to consumer’s that do not prefer to visit electronic shops ($\mu=7,08$).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variable:</th>
<th>Value pleasure received while shopping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor:</strong></td>
<td>Shopping alone</td>
</tr>
<tr>
<td>Homogeneity test of variances is not significant (P=0,331)</td>
<td></td>
</tr>
<tr>
<td>The Tukey test shows there is a significant difference between the groups ($F =6,035 \ PC=0,015$). Consumers whom visit a shopping mall alone value shopping lower ($\mu=6,91$), compared to consumer’s that do not visit the shopping mall alone ($\mu=7,59$).</td>
<td></td>
</tr>
</tbody>
</table>
Independent variable: Value pleasure received while shopping  
Factor: Shopping with friends

Homogeneity test of variances is not significant \( (P=0.923) \)

The Tukey test shows there is a significant difference between the groups \( (F =13,882 \ PC=0.000) \). Consumers whom visit a shopping mall with friends value shopping higher \( (\mu=8.17) \), compared to consumer’s that do not visit the shopping mall with friends \( (\mu=7.08) \).
9.4.3 CONCLUSION ONE-WAY ANOVAs

Based on the simple relations using crosstabs and Onaway ANOVAs, two tentative profiles could be made. The first profile describes the type of consumer which values shopping the most, receiving most pleasure while shopping (table 16).

The second profile describes the type of consumer which values shopping the least, receiving the least pleasure when shopping (table 17). As pleasure leads to more time spent, increasing the likeliness of vertical circulation, the first profile is most interesting to analyze in relation to the attributes.

**HEDONIC SHOPPER**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending time in shopping mall</td>
<td>&gt; 2 hours</td>
</tr>
<tr>
<td>Type of shops</td>
<td>Clothes, shoes, Health &amp; cosmetics, Jewelry</td>
</tr>
<tr>
<td>Net income</td>
<td>&lt; 1.100 Euros per month</td>
</tr>
<tr>
<td>Household</td>
<td>At home with family / With roommates</td>
</tr>
<tr>
<td>Accompanied by</td>
<td>Friends</td>
</tr>
<tr>
<td>Shopping value</td>
<td>Hedonic</td>
</tr>
</tbody>
</table>

*Table 16: Profile of a Hedonic shopper*

The first profile seems to describe more the kind of characteristics that fit with hedonic shopping. They enjoy shopping itself, rather than buying. As this consumers who fit this profile have little to spent, they do stay for a long time in the shopping mall.

The second profile relates with utilitarian values. As these consumers are more task-related, they do not spent a lot of time within the shopping mall and prefer to shop alone. They seem to waste a minimum amount of time in a shopping center. Both profiles, the so called hedonic shopper and the utilitarian shopper’ seem to be consistent with the literature (Jones, 2006) which adds to the credibility of these profiles. The proof of the pudding would be to use clustering techniques, but that is left for secondary analyses and further research, since this is not the main focus of this study.

**UTILITERIAN SHOPPER**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending time in shopping mall</td>
<td>15-30 minutes</td>
</tr>
<tr>
<td>Type of shops</td>
<td>Electronics</td>
</tr>
<tr>
<td>Net income</td>
<td>&gt; 3.050 Euros per month</td>
</tr>
<tr>
<td>Household</td>
<td>With partner (and children)</td>
</tr>
<tr>
<td>Accompanied by</td>
<td>Alone</td>
</tr>
<tr>
<td>Shopping value</td>
<td>Utilitarian</td>
</tr>
</tbody>
</table>

*Table 17: Profile of a Utilitarian shopper*
9.5 CONJUNCT MEASURING: MAIN EFFECTS

9.5.1 Introduction

In the former paragraph, the descriptive part of the results has been evaluated. In order to test the main attribute effects, this paragraph analyzes the actual preferences of consumers, based on the virtual tours (vignettes). To analyze the discrete choice modeling with vignettes, three individual questions are asked to the consumers.

**Choice experiment 1:** In which shopping mall are you most inclined to visit the ground floor as well as the other floors? [translation of: In welk winkelcentrum bent u het meest geneigd om niet alleen de begane grond te bezoeken, maar ook de andere verdiepingen te bezoeken?]

**Choice experiment 2:** Of which shopping mall, does the ground floor invites you most to take the stair to the next floor? [translation of: Van welk winkelcentrum vindt u dat de begane grond het meest uitnodigt om de trap naar de volgende verdieping te nemen?]

**Choice experiment 3:** Of which shopping mall does the upper floor attracts you most? [translation of: Van welk winkelcentrum spreekt de bovenste verdieping u het meeste aan?]

This paragraph will not only analyze the individual questions separately, but will also look at the interference. This interference will look if there is a change in priority of attributes between the different discrete choice models, and if so, what could be an explanation for this.

To test these discrete choice models, 2,034 observations (226 *1 * 3 *3) from the discrete choice survey are analyzed in SAS.

SAS tests the main effects, described as the effect of an attribute or attribute level on the total preferred environment of the consumer, without the interaction of other attributes or attribute levels.

In order to make a reliable statement, a significance level of (<10%) has been used. This means there is a 90% reliability of the outcome, relating to the significant attributes, playing a role in the preference of a consumer. This is slightly higher than what is normally used, because this is an explorative study and the number of respondents per block is not that large.
9.5.2 Testing attributes

To test attributes, reference levels are used. Reference levels are single attribute levels to which the other attribute level (in case of 2 level attributes), or the other 2 levels (for the remaining attributes) were compared to. The outcome could be positive as well as negative. Positive scores compared to the reference level show a preference of the measured attribute level, while negative scores show a preference for the reference level. The values found in SAS are always based on comparison of the different attribute levels towards each other. To indicate whether the attributes have any significant effect on the preference of consumers for several vignettes, different estimates are obtained.

Parameter estimate: if the parameter estimate differs from 0, it expresses a utility. This utility is used in order to rank the attributes, according to importance on the preference of consumers. The closer a parameter is positioned to 1 or -1, the more important the attribute is.

Standard error: the standard deviation of the parameter representing the utility.

Chi-Square: The Chi-square test is used to decide whether or not the model has a good fit.

PR > Chi-square (p-value): Shows the level of significance of an attribute. For the main effects, if this score is <0.10, the attribute is considered to be significant, playing a role in the preferred environment of consumers in order to vertically circulate.

Hazard ratio: The hazard ratio estimates to what extent the attribute level of interest is more preferred than the reference level (is is a ratio of probabilities). If the hazard ratio of an attribute level is >1, compared to the reference level, consumers prefer the attribute level of interested over the reference level.
**CHOICE EXPERIMENT 1:** In which shopping mall are you most inclined to visit the ground floor as well as the other floors?

Table 18 shows which the attributes are significant. Two level attributes have only one entry. Three levels attributes show for both levels of interest the results compared to the reference level. As shown in this table, most attributes showed no significant difference between either levels. Since only signing and anchor show some significance and because it is assumed that the question was problematic formulated (using inclined for instance), this first discrete choice modeling question is discarded in the further study.

<table>
<thead>
<tr>
<th>Variables</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>Standard error</th>
<th>Chi-Square</th>
<th>Pr &gt; Chi-Square</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives</td>
<td>1</td>
<td>0.153</td>
<td>0.184</td>
<td>0.691</td>
<td>0.406</td>
<td>1.166</td>
</tr>
<tr>
<td>Signing</td>
<td>1</td>
<td>-0.347</td>
<td>0.200</td>
<td>3.002</td>
<td>0.083</td>
<td>0.707</td>
</tr>
<tr>
<td>Crowding</td>
<td>1</td>
<td>0.280</td>
<td>0.217</td>
<td>1.680</td>
<td>0.195</td>
<td>1.323</td>
</tr>
<tr>
<td>Human scale</td>
<td>1</td>
<td>-0.295</td>
<td>0.216</td>
<td>1.867</td>
<td>0.172</td>
<td>0.745</td>
</tr>
<tr>
<td>Visual lines</td>
<td>1</td>
<td>-0.114</td>
<td>0.2039</td>
<td>0.311</td>
<td>0.577</td>
<td>0.893</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>1</td>
<td>0.008</td>
<td>0.198</td>
<td>0.001</td>
<td>0.973</td>
<td>1.007</td>
</tr>
<tr>
<td>Daylight</td>
<td>1</td>
<td>-0.25244</td>
<td>0.205</td>
<td>1.517</td>
<td>0.218</td>
<td>0.777</td>
</tr>
<tr>
<td>Art</td>
<td>1</td>
<td>0.074</td>
<td>0.210</td>
<td>0.125</td>
<td>0.723</td>
<td>1.077</td>
</tr>
<tr>
<td>Spatial form</td>
<td>1</td>
<td>-0.26725</td>
<td>0.207</td>
<td>1.660</td>
<td>0.198</td>
<td>0.765</td>
</tr>
<tr>
<td>Materials/color</td>
<td>1</td>
<td>-0.18321</td>
<td>0.187</td>
<td>0.946</td>
<td>0.331</td>
<td>0.833</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>1</td>
<td>0.069</td>
<td>0.195</td>
<td>0.1237</td>
<td>0.725</td>
<td>1.071</td>
</tr>
<tr>
<td>Anchor</td>
<td>1</td>
<td>-0.39110</td>
<td>0.215</td>
<td>5.390</td>
<td>0.020</td>
<td>0.612</td>
</tr>
</tbody>
</table>

*Table 18: Outcome CHOICE EXPERIMENT1*

**CHOICE EXPERIMENT 2:** Of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

Table 19 shows significant outcomes for 5 attributes (i.e. visual lines, daylight, art, materials/color and type of circulation) of the 12 attributes measured. The other 7 attributes that are not significant could also be described to the 3d method used. This will be addressed in the remaining of this paragraph.

<table>
<thead>
<tr>
<th>Variables</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>Standard error</th>
<th>Chi-Square</th>
<th>Pr &gt; Chi-Square</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives</td>
<td>1</td>
<td>-0.00232</td>
<td>0.192</td>
<td>0.000</td>
<td>0.9904</td>
<td>0.998</td>
</tr>
<tr>
<td>Signing</td>
<td>1</td>
<td>-0.30021</td>
<td>0.21356</td>
<td>1.976</td>
<td>0.160</td>
<td>0.741</td>
</tr>
<tr>
<td>Crowding</td>
<td>1</td>
<td>0.358</td>
<td>0.223</td>
<td>2.542</td>
<td>0.111</td>
<td>1.427</td>
</tr>
<tr>
<td>Human scale</td>
<td>1</td>
<td>-0.11820</td>
<td>0.21515</td>
<td>0.302</td>
<td>0.583</td>
<td>0.889</td>
</tr>
<tr>
<td>Visual lines</td>
<td>1</td>
<td>-0.876</td>
<td>0.230</td>
<td>14.497</td>
<td>0.000</td>
<td>0.416</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>1</td>
<td>-0.212</td>
<td>0.217</td>
<td>0.9546</td>
<td>0.329</td>
<td>0.809</td>
</tr>
<tr>
<td>Daylight</td>
<td>1</td>
<td>-0.685</td>
<td>0.223</td>
<td>9.435</td>
<td>0.002</td>
<td>0.504</td>
</tr>
<tr>
<td>Art</td>
<td>1</td>
<td>0.388</td>
<td>0.226</td>
<td>2.940</td>
<td>0.086</td>
<td>1.474</td>
</tr>
<tr>
<td>Spatial form</td>
<td>1</td>
<td>-0.282</td>
<td>0.215</td>
<td>1.729</td>
<td>0.189</td>
<td>0.754</td>
</tr>
<tr>
<td>Materials/color</td>
<td>1</td>
<td>0.343</td>
<td>0.191</td>
<td>3.222</td>
<td>0.073</td>
<td>1.410</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>1</td>
<td>0.412</td>
<td>0.21361</td>
<td>3.714</td>
<td>0.054</td>
<td>1.509</td>
</tr>
<tr>
<td>Anchor</td>
<td>1</td>
<td>-0.160</td>
<td>0.213</td>
<td>0.567</td>
<td>0.57</td>
<td>0.451</td>
</tr>
</tbody>
</table>

*Table 19: Outcome CHOICE EXPERIMENT2*
No significant relations found

Alternatives: Alternatives are designed to indicate the number of options consumers have to circulate. When asking to give a preference about the ground floor on which consumers feel most invited to enter the upper floor, consumers might have been focused on the upper floor, rather than on alternatives given at the ground floor.

Signing: Signing plays no moderating role in the preference of attributes. It could also be signing is more focused on actual way finding, rather than the interpretation of a preferred environment. As consumers are asked their preference inside a shopping mall, they are not within a situation in which way finding is important.

Crowding: Crowding at the upper floor is not an important attribute here, but it is important in the next CHOICE EXPERIMENT. Clearly, it is more experienced and less recognized by consumers when focusing on ground floor. Only when circulating on both ground floor and upper floor (CHOICE EXPERIMENT3), consumers compare and judge based on crowding.

Human scale: Human scale is not significant. This could also relate to the method, as human scale is experienced while standing within a large open space, rather than looking at a large open space.

Vertical parcelation: In CHOICE EXPERIMENT2, attention is not directed towards above and this might be why it is not significant here.

Spatial forms: In CHOICE EXPERIMENT2, spatial form is not significant and thus not important. The way this attributes is visualized does not block off visual lines. Within the case-studies, some organic forms of the mall cause to break visual lines. This difference could explain the outcome of these results compared to the case-studies.

Anchor: The anchor is an attribute attracting attention to the upper level, rather than the ground floor. This might explain why this attribute has no significant effect.

Significant attributes & attribute levels

To analyze the significance, the reference group is compared with the other attribute levels, based on their utility (Parameter estimate).

Visual lines: Respondents felt significantly more invited by the ground floor to vertically circulate by the presence of visual lines compared to the lack of visual lines (Table 20)

<table>
<thead>
<tr>
<th>Visual lines</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute levels</td>
<td></td>
</tr>
<tr>
<td>80% visual lines upper floor-ground floor (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>20% visual lines upper floor-ground floor</td>
<td>-0.876</td>
</tr>
</tbody>
</table>

Table 20: Utility Visual lines

Visual lines are most important for the preference of consumers in this CHOICE EXPERIMENT. The strong negative value of the parameter estimate at the attribute 20% visual lines upper floor-ground floor means consumers have a strong preference for visual lines.

In both literature and case-studies these visual lines were often under discussion. As J. Sinke (2010) describes, opening up towards the upper floor using small openings creates a form of excitement, attracting consumers to vertically circulate. At Myzeil this type of excitement has
been implemented into the design, while Westfield and Duisburg where examples with a totally open view.

From former research (Warners, 2010) and several interviews (Van den Berg, 2010; Veenendaal, 2010; De Bont, 2010) visual lines do seem to be one of the success factors make consumers decide to vertically circulate, rather than offering a combination of open and closed visual lines.

**Daylight:** respondents felt significantly more invited by the ground floor to vertically circulate by using daylight entrance from the roof compared to no daylight entrance from the roof (Table 21).

<table>
<thead>
<tr>
<th>Daylight</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparent glass roof</td>
<td>0</td>
</tr>
<tr>
<td>No transparency in roof</td>
<td>-0,685</td>
</tr>
</tbody>
</table>

*Table 21: Utility Daylight*

Every case-study used daylight in different ways. From the DCM2 results, it seems the most attractive way is to open up with a complete glass roof such as Westfield and Forum Duisburg. Making a connection with daylight seems to decrease the effort for consumers to vertically circulate.

**Type of circulation:** respondents felt significantly more invited by the ground floor to vertically circulate by using multiple elevation points compared to using an express stairway (Table 22).

<table>
<thead>
<tr>
<th>Type of circulation</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express stairway</td>
<td>0</td>
</tr>
<tr>
<td>Double stairways</td>
<td>0,411</td>
</tr>
<tr>
<td>Single stairway</td>
<td>0,182</td>
</tr>
</tbody>
</table>

*Table 22: Utility Type of circulation, Source: Own*

The single stairway shows not to be significant, while double stairways seem to invite respondents, compared to the express stairway. This is interesting, because some case-studies used an express stairway to create an attractive environment, whereas from these analyses it seems that consumers prefer multiple elevation points, which lowers the effort to circulate.

Double stairways also offer a form of balance, in which consumers are offered more elevation points to both enter and exit a floor. It seems that consumers do not like to be forced to skip several floors, as with the express stairway.

**Art:** respondents felt significantly more invited by the ground floor to vertically circulate by the presence of art on the upper floor compared to no presence of art on the upper floor (Table 23).

<table>
<thead>
<tr>
<th>ART</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No art (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>Art</td>
<td>0,388</td>
</tr>
</tbody>
</table>

*Table 23: Utility Art*

Art shows to be of importance. Many case-studies do indicate this trend of art, combining vertical circulation with an extraordinary form of art, often using artificial light. However, little research is present on the use of
these types of art. This could indicate art is an interesting attribute for future developments.

Materials/color: respondents felt significantly more invited by the ground floor to vertically circulate by an environment using warm colors, compared to an environment using a gradient (Table 24).

<table>
<thead>
<tr>
<th>Materials/color</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradient (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>Warm materials</td>
<td>0.344</td>
</tr>
<tr>
<td>Cold materials</td>
<td>0.247</td>
</tr>
</tbody>
</table>

Table 24: Utility Materials/color, Source: Own

Warm materials seem to be most positive judged upon, stimulating consumers to vertically circulate. As research describes, consumers are more attracted to warm colors, rather than to cold colors (Bodegraven, 2004). It is likely not only the warm colors but also the materials to be of importance. Brickwork creates a rather comfortable expression and less museal, compared to cold materials like glass.

**Ranking attributes on importance**

Based on the utility given, the importance of the attributes could be ranked:

1. Visual lines
2. Daylight
3. Type of circulation
4. Art
5. Materials/colors

**Conclusion**

Consumers seem to prefer a shopping mall with a ground floor that allows them to orientate. They feel invited to vertically circulate in a shopping mall with a ground floor that has strong visual lines, with daylight from the roof. They preferred a ground floor with either warm or cold colors to a gradient from cold to warm. They felt attracted by art and they seem to prefer the double stairways and the single stairway respectively, to the express stairway. It seems that the ground floor is considered attractive and stimulates to go upstairs if it supports the ease consumers can orientate and circulate.
CHOICE EXPERIMENT 3: Of which shopping mall, the upper floor attracts you most?

Table 25 shows that 6 of the 12 attributes were important to the attractiveness of the upper floor.

<table>
<thead>
<tr>
<th>Variables</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>Standard error</th>
<th>Chi-Square</th>
<th>Pr &gt; Chi-Square</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives</td>
<td>1</td>
<td>0.560</td>
<td>0.210</td>
<td>7.115</td>
<td>0.008</td>
<td>1.751</td>
</tr>
<tr>
<td>Signing</td>
<td>1</td>
<td>-0.348</td>
<td>0.219</td>
<td>2.535</td>
<td>0.113</td>
<td>0.706</td>
</tr>
<tr>
<td>Crowding</td>
<td>1</td>
<td>0.544</td>
<td>0.264</td>
<td>4.243</td>
<td>0.039</td>
<td>1.723</td>
</tr>
<tr>
<td>Human scale</td>
<td>1</td>
<td>-0.242</td>
<td>0.235</td>
<td>1.058</td>
<td>0.304</td>
<td>0.785</td>
</tr>
<tr>
<td>Visual lines</td>
<td>1</td>
<td>0.019</td>
<td>0.226</td>
<td>0.007</td>
<td>0.934</td>
<td>1.019</td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>1</td>
<td>-0.623</td>
<td>0.241</td>
<td>6.693</td>
<td>0.010</td>
<td>0.536</td>
</tr>
<tr>
<td>Daylight</td>
<td>1</td>
<td>-0.935</td>
<td>0.234</td>
<td>15.90</td>
<td>0.000</td>
<td>0.393</td>
</tr>
<tr>
<td>Art</td>
<td>1</td>
<td>0.340</td>
<td>0.252</td>
<td>2.51</td>
<td>0.113</td>
<td>1.491</td>
</tr>
<tr>
<td>Spatial form</td>
<td>1</td>
<td>-0.389</td>
<td>0.265</td>
<td>2.153</td>
<td>0.142</td>
<td>0.678</td>
</tr>
<tr>
<td>Materials/color</td>
<td>1</td>
<td>-0.65962</td>
<td>0.208</td>
<td>10.03</td>
<td>0.002</td>
<td>0.517</td>
</tr>
<tr>
<td>Type of circulation</td>
<td>1</td>
<td>0.060</td>
<td>0.215</td>
<td>0.078</td>
<td>0.780</td>
<td>1.062</td>
</tr>
<tr>
<td>Anchor</td>
<td>1</td>
<td>-1.0584</td>
<td>0.223</td>
<td>22.560</td>
<td>0.000</td>
<td>0.347</td>
</tr>
</tbody>
</table>

Table 25: Outcome CHOICE EXPERIMENT3

This question focuses on the reward that consumers perceive after vertical circulation, and has to be distinguished from the CHOICE EXPERIMENT2 which emphasized the ground floor. These different questions were indeed yielding a different response in respondents, as partly different attributes were considered important.

No significant relations found

**Signing:** The signing was intended to attract consumers towards the upper floor. There was only signing on the ground floor and it does not have an effect on the attractiveness of an upper floor.

**Human scale:** human scale has not been significant throughout all analyses.

**Visual lines:** Visual lines are an important attribute in stimulating consumers to go upstairs from the ground floor. Is did not turn out to be a significant factor in the valuation of the upper floor. This result compares to what was found in one of the cases. Forum Duisburg has opened up towards above and closed down towards the basement, showing little visual lines from above.

**Art:** Art is another significant relation found in CHOICE EXPERIMENT2, but it does not seem important for the attractiveness of the upper floor. This indicates Art could be a tool to attract consumers to vertically circulate, rather than making it attractive. These results compares to what was noticed in the case of Palladium and an additional example from The Sting. Both types of art are located around vertical circulation and do not offer any value for the attractiveness of an upper floor.

**Spatial form:** like with CHOICE EXPERIMENT2, spatial form does not influence the valuation of the upper floor as well.
Type of circulation: when asked for their valuation of the ground floor, it did not make any difference whether one would arrive there by express, single or double stairway.

**Significant attributes & attribute levels**

Anchor: respondents were significantly more attracted to a upper floor with Gastro boulevard compared to having a Fashion or Media puller over there (Table 26)

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro boulevard (Reference group)</td>
<td>0</td>
</tr>
<tr>
<td>Fashion</td>
<td>-0.850</td>
</tr>
<tr>
<td>Media</td>
<td>-1.058</td>
</tr>
</tbody>
</table>

Table 26: Utility Anchor

The negative parameter estimates compared to the reference group, show Gastro Boulevard is preferred. The attractiveness of an upper floor is strongly linked with the aspect leisure. Many case-studies identify the strong attractiveness of locating leisure on the upper floor. Consumers prefer leisure as most attractive to stay, enjoy and relax.

Daylight: respondents were significantly more attracted to a upper floor with lots of Daylight compared to an oblique roof without daylight (Table 27).

<table>
<thead>
<tr>
<th>Daylight</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparent glass roof (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>No transparency in roof</td>
<td>-0.934</td>
</tr>
</tbody>
</table>

Table 27: Utility Daylight, Source: Own

As consumers enjoy the leisure related activities, the presence of daylight shows to be a strong significant attribute level. As consumers are already present on the upper floor, it is likely daylight is not only attractive to circulate, but an transparent roof is also rewarding to consumers. It also creates a comfortable view while performing leisure-related activities, which is necessary for such activities (Veenendaal, 2010).

Vertical parcelation: respondents were significantly more attracted to an upper floor with vertical parcelation in the facades compared to no vertical parcelation (Table 28).

<table>
<thead>
<tr>
<th>Vertical parcelation</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical parcelation (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>No Vertical parcelation</td>
<td>-0.623</td>
</tr>
</tbody>
</table>

Table 28: Utility Vertical parcelation

The vertical parcelation bringing a certain form of diversity into the shopping mall. Since this was not an important attribute at ground floor level, it seems that variety is higher valued when performing leisure-related activities, than during shopping-related activities.

Alternatives: respondents were significantly more attracted to the upper floor of a shopping mall with several alternatives available than to a upper floor in a shopping mall without alternatives (Table 29).

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>No alternatives (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>Alternatives</td>
<td>0.560</td>
</tr>
</tbody>
</table>

Table 29: Utility Alternatives. Source: Own
The significant relation found at alternatives could identify consumers not only judge the upper floor when present, but also judge based on relation between the floors of the entire mall. These types of relations are important to investigate, as consumers circulate through an entire shopping mall, rather than one single point. The utility shows consumers are more attracted to an open and spacious design of the shopping mall, rather than a closed box excluding itself from the environment.

Crowding: respondents were significantly more attracted to a crowded upper compared to a lack of crowding at the upper floor (Table 30).

<table>
<thead>
<tr>
<th>Crowding</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowding ground floor (reference group)</td>
<td>0</td>
</tr>
<tr>
<td>Crowding upper floor</td>
<td>0.544</td>
</tr>
</tbody>
</table>

Table 30: Utility Crowding

Crowding is preferred to no crowding on the upper floor. More crowding is likely to show a strong relation with leisure present. As people attract people, consumers show a preference for a crowded leisure-related activity. This seems natural, as a consumer is not likely to choose the restaurant that is empty when eating and will look for some other place to eat.

Material/Colors: respondents were significantly more attracted to a upper floor in a shopping mall with a gradient than to an upper floor in a shopping mall with either warm or cold colors (Table 31).

<table>
<thead>
<tr>
<th>Materials/Colors</th>
<th>Parameter estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradient</td>
<td>0</td>
</tr>
<tr>
<td>Warm materials</td>
<td>-0.660</td>
</tr>
<tr>
<td>Cold colors</td>
<td>-0.544</td>
</tr>
</tbody>
</table>

Table 31: Utility Materials/color

As warm materials are preferred for vertical circulation, the gradient show strongest pattern at the upper level. The gradient makes use of warm colors at the upper floor using wood, combined with cold colors at the lower positioned floors. This contrast seems to attract consumers and is likely to offer a certain form of surprise. Besides surprise, it might offer a more organic feeling when performing a leisure-related activity when wood is used.

Ranking attributes on importance

Based on the utility given, the importance of the attributes could be ranked:

1. Anchor
2. Daylight
3. Vertical parcelation
4. Alternatives
5. Crowding
6. Materials/Colors
Conclusion

The outcome seems strongly emphasize leisure-activities. They preferred the Gastro boulevard at the upper floor and highly valued a crowded upper floor that has lots of daylight and laminate floor in a shopping mall that had colder colors/materials at lower floor as well as vertical parcelation and an open spacious design of the shopping mall at the ground floor. These results seems to emphasize aspects referred to as “excitement of the new” and compare rather well to results from the case studies. Consumers want to feel protected (Sinke, 2010) and more comfortable when perform leisure-related activities. It needs to bring diversity, comfortable daylight, crowding and makes use of warm materials. it compares to a kind of ‘coziness’, not staying in a too museal environment (de Bont, 2010) with cold materials and uniform shopping facades.
9.5.3 Differences between the outcome of discrete choice analyses

Unlike the other two questions, the question about the shopping mall that respondents were most inclined to visit the ground floor as well as the other floors, did not show strong effects, and it was argued that this could be due to the use of the word ‘inclined’. This may be difficult to answer, or not well understood. The results of CHOICE EXPERIMENT1 are therefore not further considered.

This paragraph focuses on the other two discrete choice questions. Table 32 and 33 shows the different utilities of attributes per CHOICE EXPERIMENT. Because reference levels are used, both negative as positive results are present. The difference shows the added value the 3dvignettes have. Differences between the CHOICE EXPERIMENT outcomes states that consumers do show different behavior within different points of the shopping mall. They change from mind setting to vertically circulate and to shop/relax when present on the floor of destination.

### CHOICE EXPERIMENT 2: of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

<table>
<thead>
<tr>
<th>Significant attributes</th>
<th>Significant attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Visual lines</td>
<td>1. Anchor</td>
</tr>
<tr>
<td>2. Daylight</td>
<td>2. Daylight</td>
</tr>
<tr>
<td>3. Type of circulation</td>
<td>3. Vertical parcelation</td>
</tr>
<tr>
<td>4. Art</td>
<td>4. Crowding</td>
</tr>
<tr>
<td>5. Materials/colors</td>
<td>5. Alternatives</td>
</tr>
<tr>
<td></td>
<td>6. Materials/colors</td>
</tr>
</tbody>
</table>

Table 32: Utility of Attributes

![Utilities of Attributes](image)

Table 33: Ranking on importance of Attributes

As mentioned before at the results of CHOICE EXPERIMENT2 (see table 34), it seems that the ground floor is considered attractive and stimulates to go upstairs if it supports the ease consumers can orientate and circulate. One might say that the ground floor needs to address the “comfort of the known”. In CHOICE EXPERIMENT3 the emphasis was on the upper floor. There the outcome seems to strongly emphasize leisure-activities and the results seem to emphasize aspects referred to as “excitement of the new” and compare rather well to results from the case studies. Table 35 summarizes the results of the CHOICE EXPERIMENT3.
**CHOICE EXPERIMENT 2:** In which shopping mall do you feel most invited by the ground floor to visit the upper floor?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 80% Visual lines</td>
<td>‘COMFORT OF THE KNOWN’</td>
</tr>
<tr>
<td>2. Daylight entrance from roof</td>
<td></td>
</tr>
<tr>
<td>3. Multiple elevation points</td>
<td></td>
</tr>
<tr>
<td>4. Presence of art</td>
<td></td>
</tr>
<tr>
<td>5. Warm Materials/colors</td>
<td>‘EXCITEMENT OF THE NEW’</td>
</tr>
</tbody>
</table>

*Table 34: Ranking on importance vs. type of environment.*

When present on the upper floor, consumers prefer the attractiveness of an environment with leisure-related activities, rather than shopping related activities. Excitement and variety is dominant compared to orientation (table 29).

**CHOICE EXPERIMENT 3:** In which shopping mall, the upper floor attracts you the most?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anchor Gastro Boulevard</td>
<td></td>
</tr>
<tr>
<td>2. Daylight entrance from roof</td>
<td></td>
</tr>
<tr>
<td>3. Vertical parcelation of individual facades</td>
<td>‘EXCITEMENT OF THE NEW’</td>
</tr>
<tr>
<td>4. Crowding upper floor</td>
<td></td>
</tr>
<tr>
<td>5. Several alternatives</td>
<td></td>
</tr>
<tr>
<td>6. Gradient of materials/colors</td>
<td></td>
</tr>
</tbody>
</table>

*Table 35: Ranking on importance vs. type of activities.*
9.6 CONJUNCT MEASUREMENT: INTERACTION EFFECTS

This paragraph reports the significant interaction effects. There was no clear pattern of interactions between attributes, both for the CHOICE EXPERIMENT2 and CHOICE EXPERIMENT3 questions. Therefore only significant interactions found between individual attributes (9.4) and the tentative profiles of consumers (9.2) are here described. All interaction effects will be considered significant at a 5% significance level (<0.05).

9.6.1 INTERACTION PROFILES – CHOICE EXPERIMENTS

To look at interactions between the profiles and choice experiments, the two tentative profiles of consumers in paragraph 9.3.4 are related to the attributes found to be significant in the previous analyses. It analyzes whether the type of people and pleasure received during shopping has influence on the preferred environment. As the profiles are based on significant relations found at the main variable valuation of amount of pleasure received during shopping, this variable is tested to the attributes in SAS.

There appears to be a significant relation between utilitarian shoppers and the preference for multiple elevation points in order to stimulate vertical circulation (Table 36). Utilitarian shoppers prefer to have multiple entrances and exits from upper floors. This seems to refer to the economy of movement, in which consumers like to spend the least effort in order to circulate and waste a minimum of time with task-related shopping.

Table 36 shows the significant relations between the tentative profiles used in the research. It suggests that hedonic shoppers have a strong preference for leisure oriented activities, compared to utilitarian shoppers. Utilitarian shoppers also seem to prefer the use of warm materials over cold materials or gradient in colors/material. They seem not eager to be surprised by the use of gradient, but might a less changing environment.

Table 37 shows the significant relations between attributes and profiles in CHOICE EXPERIMENT2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>Standard error</th>
<th>Chi-Square</th>
<th>Pr &gt; Chi-Square</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilitarian * Double stairway</td>
<td>1</td>
<td>1.118</td>
<td>0.466</td>
<td>5.754</td>
<td>0.0164</td>
<td>1.438</td>
</tr>
</tbody>
</table>

Table 37: Interactions between attributes and profiles in CHOICE EXPERIMENT2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>DF</th>
<th>Parameter estimate</th>
<th>Standard error</th>
<th>Chi-Square</th>
<th>Pr &gt; Chi-Square</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilitarian * Media -1,070</td>
<td>0.512</td>
<td>4.369</td>
<td>0.0366</td>
<td>0.343</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilitarian * Warm materials</td>
<td>1</td>
<td>1.021</td>
<td>0.422</td>
<td>5.827</td>
<td>0.0158</td>
<td>2.776</td>
</tr>
</tbody>
</table>

Table 37: Interactions between attributes and profiles in CHOICE EXPERIMENT3.
CONCLUSIONS & RECOMMENDATIONS
This chapter formulates the conclusions found in the research. Furthermore, recommendations will be given about retail design of vertical shopping malls. It also discusses several points for further research.

10.1 CONCLUSIONS

Inner-city retail developments in the Netherlands are subjective to continuous change. Due to ground scarcity and financial feasibility, shopping malls are forced to integrate and vertically extend, developing retail over several layers. In the Netherlands, these multiple layered shopping malls are coping with poor functioning upper floors, which is the result of inadequate numbers of passersby. All together, developers have a growing urge of knowledge about how to stimulate consumers to vertically circulate, visiting all retail layers of the shopping mall.

To date, research into consumer preferences of retail design mainly focuses on selected, such as colour, lightning, and signing (Belizzi et al., 1992; Wakefield et al. 1998). Generally, quantitative studies focused on individual design characteristics, not on a bundle of characteristics, although it is widely acknowledged that consumers’ preferences are influenced by their combined appearance in the shopping mall design. Furthermore, existing quantitative research do not address the design characteristics affecting vertical circulation behaviour of consumers. Indeed, consumer circulation has been described as the ‘dark continent’ of retail designs (Brown, 1991). This lack of research has been recognized in practice indeed, as put forward by Multi-Development (Ruigrok, 2010).

Since there is a growing urge to better understand the shopping mall environmental characteristics that influences consumer’s behaviour to vertically circulate or not, a research project was conducted. This research project tries to answer the question:

Which characteristics of the encountered environment in a shopping mall do affect the preferences for vertical circulation of consumers, and to what extent are their preferences for vertical circulation influenced by their personal characteristics?

Questions that need to be answered in order to give an answer to the central research question are:

1. Which personal characteristics of consumers affecting consumer preferences for vertical circulation are mentioned in literature?
2. Which characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation are mentioned in literature?
3. What might be considered as important characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation?
4. To what extent do consumers’ experiences of the encountered environment influence their preferences for vertical circulation, which is thought to indirectly affect retail profits at upper floors inside a shopping mall?

A literature study was performed to answer the first two sub questions.

Understanding the relation between consumer behaviour and environment, desires insight in the field of knowledge related to environmental psychology. Environmental stimuli (S) activate an internal
Stimuli: the environmental stimuli are the environment consumer’s encounter while shopping. This indicates retail designers and developers might manipulate a certain response by changing the encountered environment.

Organism: every internal process of a consumer perceiving an environment is different, as it is related to his personal circumstances, situational factors and psychological factors. While acknowledging the individuality of consumers’ internal processes, this study assumes that differences between (groups of) consumers are larger than within consumers, and this study therefore focuses on the ‘mainstream’ or ‘average’ consumer, as well as on groups of consumers.

Response: an actual response could be to vertically circulate or not. The actual response is based on consumer’s experience, formed by the stimuli and organism, mentioned before. Circulation patterns often performed by consumers are listed in figure 139.

Consumers do not easily deviate from the main path and their pre-set route. This shows economy of movement is leading, in which consumers perform the least amount of effort to reach a certain destination. Consumers are only lead away from this principle, if attracted enough by the environment.

With this in mind the sub questions will be answered

Which personal characteristics of consumers affecting consumer preferences for vertical circulation are mentioned in literature?
Table 39 summarized the personal characteristics and the influences of some social factors that are considered important during shopping (Verhage, 2004).

<table>
<thead>
<tr>
<th>Personal circumstances</th>
<th>Psychological factors</th>
<th>Social factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>Motives &amp; Perception</td>
<td>Culture</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>Personality</td>
<td>Social class</td>
</tr>
<tr>
<td>Situational factors</td>
<td>Attitudes</td>
<td>Family influences</td>
</tr>
</tbody>
</table>

Consumer’s mental process while shopping

Table 99: Consumer’s mental process while shopping
Source: Verhage, 2004

Two kind of psychological factors deserve some further explanation, as these are considered highly important in literature. That are pleasure (emotion) and shopping values (utilitarian, hedonic).

**Emotion**

Although retail developers try to influence consumers response to increase retail profits, little attention is given to the way consumers experience an environment and respond to it. The retail environment holds several environmental cues and aims to influence consumers in an emotional way to spend more time and more money, and to come back again. Various researches indicated that increased levels of pleasure encourage consumers to spend more time in shopping malls (Massara, 2009). To increase pleasure, there must be sufficient stimulation from the encountered environment not to feel bored, whereas too much stimulation would stresses out consumers. A proper balance would be such that both consumers who feel pleasant with comfort of the known and consumers preferring excitement of the new (Gianotten, 2008; interview JS) are satisfied. Comfort of the known is focused on the ease for consumers to shop, whereas excitement of the new is more related to bringing a new experience, triggering a certain amount of excitement and contributes to the idea of shopping being an experience.

**Shopping values**

Within the body of knowledge on consumer-based research, researchers often talk about shopping values, generally a combination of two classifications mentioned in this paragraph. In research two types of shopping values dominate literature (Jones, 2006; Babin et.al, 1994; Chebat,2007; Massara,2009). These two shopping values were conserved be useful in describing consumer’s shopping rewards:

1) A utilitarian outcome resulting from some type of conscious pursuit of an intended consequence and (2) an outcome related more to a spontaneous hedonic response (Babin et al., 1994).

1) ‘Comfort of the known’

‘I know my shopping trip is a success, no matter what happens’

Comfort of the known is a used term to identify the economy of movement, in which consumers have to perform least effort to vertically
circulate. Consumer’s main attention for Comfort of the known is the presence of strong visual lines and orthogonal forms, optimizing the orientation of consumers. Comfort of the known has a strong relation with shopping-related activities, which are more focused on good orientation with strong visual lines towards anchors and no obstacles to reach a certain destination.

2) ‘Excitement of the new’

‘I love to shop, discovering the mall piece by piece’

Excitement of the new is identified as an environment which generates constantly new surprises and is more focused on the experience economy. The fun of shopping, rather than shopping as a task. Excitement of the new shows a strong relation with leisure-related activities, which need to bring variety and show a more ‘naturally’ build environment, rather than a structured mall.

Gianotten (2008) states that people are looking for comfort or excitement, which also depends on personal characteristics as discussed in paragraph 2.3. If consumers are utilitarian and task-oriented, they prefer less variation. They are particularly focused on performing the task wasting the minimum possible time. On the other hand, hedonic shoppers prefer some variety and would like to be surprised.

Both dimensions have a positive influence on consumer behaviour (Gianotten, 2008). People do want to feel comfort to perform run (utilitarian) shopping, but also want to shop in an attractive environment.

Which characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation are mentioned in literature?

**Retail design characteristics**

In a retail environment one could distinguish characteristics about whether or not a shopping mall functions (functional characteristics) from the looks and feels of a shopping mall (atmospherics and aesthetics), shown in table 40.

Table 40: Retail design characteristics. Source: Katelijn et al., 2002.

Besides accessibility of the shopping mall, functional characteristics seem to dominate over the importance of atmosphere and aesthetics when it comes to their effect on consumer behaviour.
However, it might well be that atmosphere becomes the more and more important for inner-cities, as emotion plays a moderating role in shopping over the last decades.

To show the relation between the encountered environment and vertical circulation of consumers, case studies were conducted. In preparation to the case-studies, a combination of expert interviews related to the case-studies and literature were used. In this way, the case studies provided a critical review of the environmental characteristics found to in literature and expert interviews. The critical review is used to define attribute levels and to generate reference material (images), to be used in the survey.

What might be considered as important characteristics of the encountered environment inside a shopping mall affecting consumer’s preferences for vertical circulation?

Consumers are not always physically confronted with functional characteristics or aware of them, as they are not formed by a physical image, but by the total design of a shopping mall. On the contrary, characteristics of aesthetics do physically confront consumers, as they circulate through a shopping mall. For this research, only the atmospheric and functional characteristics which consumers are visually confronted with are used, since these might be suitable to use in visual vignettes. This excludes characteristics such as temperature, odor, sound and music.

‘How a shopping mall functions’

Functional aspects seem to focus more on shopping-related activities as the intention of a shopping mall is to shop and buy. These shopping-related activities show a relation with ‘Comfort of the known’, in which the consumer knows his shopping trip is a success, no matter what happens. Orientation is maximized and performed effort is minimized, using strong visual lines and many elevation points to vertically circulate. Consumers can directly set visual destinations within the shopping mall and can walk within a straight line towards these destinations.

‘How a shopping mall looks and feels’

Atmospherics and Aesthetics of a shopping mall have a strong relation with leisure-activities, bringing more attractiveness inside a shopping mall. These leisure-related activities show a strong relation with ‘Excitement of the new’. Whereas functional aspects are focused on shopping and buying, the leisure related activities are focused on enjoy, stay and relax. These strong differences are also presented within the environment of leisure-related activities. While comfort of the known focuses on orientation and the ease of consumers to shop, excitement of the new brings new surprises and translates shopping into an experience by itself.

Considering the studied cases, it seems that all cases varied in whether they emphasized ‘Comfort of the known’ or ‘Excitement of the new’ and that the assignment is as of how to find a proper balance between these two. This is complicated by that the kind of features that are considered positive for ‘comfort of the known’ are in turn low valued in achieving ‘excitement of the new’.

Next, to relate to the different type of design attributes found in literature, expert interviews and case-studies, a survey was designed. Part of the survey used visual vignettes. The vignette represents the retail design in which the chosen retail design attributes (aspects) constantly
vary per vignette. By systematic variation of these attributes distinct retail environments are created, providing insight into the partial benefit of a certain attribute level. To compose the different environments, 12 attributes related to the functional aspects, aesthetics and atmospherics are designed, using the case-studies as precedents (table 2).

The survey made use of an interceptive approach, in which consumers were asked to participate in a survey during their visit to Alexandrium shopping mall. Within six days (16-12-2010 / 21-12-2010), 226 valid respondents were collected within the shopping mall Alexandrium, making use of several laptops.

The content of the questionnaire is focused on identifying the stimuli (encountered environment), the organism (how consumer’s perceive the environment) and the actual response. The background information is used to collect information about the type of people, determined by their social factors and demographics. The additional information is used to identify how consumers spend their money and time (situational influences) and what kind of emotion is present (psychological factors). These questions are used to identify the personal circumstances that influence consumer behavior.

The virtual tours through three shopping malls covers the encountered environments as designed in the virtual tours (i.e. the vignettes) and the response to these environments identified the preferred circulation behavior of the consumer. The survey provided an answer to the last sub question:

To what extent do consumers’ experiences of the encountered environment influence their preferences for vertical circulation, which is thought to indirectly affect retail profits at upper floors inside a shopping mall?

To relate to the different type of design attributes found in literature, expert interviews and case-studies, vignettes are used. The vignette represents the retail design in which the chosen retail design attributes (aspects) constantly vary per vignette. By systematic variation of these attributes distinct retail environments are created, providing insight into the partial benefit of a certain attribute level. To compose the different environments, 12 attributes related to the functional aspects, aesthetics and atmospherics are designed, using the case-studies as precedents (Table 41).

<table>
<thead>
<tr>
<th>Main attribute</th>
<th>Attribute level 1</th>
<th>Attribute level 2</th>
<th>Attribute level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daylight</td>
<td>No daylight entrance</td>
<td>Daylight entrance</td>
<td></td>
</tr>
<tr>
<td>Crowding</td>
<td>Crowding upper floor</td>
<td>Crowding ground floor</td>
<td></td>
</tr>
<tr>
<td>Human scale</td>
<td>Human scale</td>
<td>No human scale</td>
<td></td>
</tr>
<tr>
<td>Visual lines</td>
<td>Visual lines</td>
<td>No visual lines</td>
<td></td>
</tr>
<tr>
<td>Alternatives</td>
<td>No alternatives</td>
<td>Alternatives</td>
<td></td>
</tr>
<tr>
<td>Art object</td>
<td>Art object</td>
<td>No Art object</td>
<td></td>
</tr>
<tr>
<td>Spatial form</td>
<td>Orthogonal</td>
<td>Organic</td>
<td></td>
</tr>
<tr>
<td>Signing</td>
<td>Theme signing</td>
<td>Store signing</td>
<td></td>
</tr>
<tr>
<td>Vertical parcelation</td>
<td>Vertical parcelation</td>
<td>No vertical parcelation</td>
<td></td>
</tr>
<tr>
<td>Materials/colors</td>
<td>Cold</td>
<td>Warm</td>
<td>Gradient</td>
</tr>
<tr>
<td>Type of stairway</td>
<td>Express</td>
<td>Single</td>
<td>Double</td>
</tr>
<tr>
<td>Anchor upper floor</td>
<td>Leisure</td>
<td>Media</td>
<td>Fashion</td>
</tr>
</tbody>
</table>

Table 41: Retail design attributes. Source: own
From an example of 2d vignettes (Figure 140-Figure141) it appears that the two vignettes have different attribute levels. Combining these aspects using a standard ‘background’ creates a totally different environment.

Instead of 2d, 3d vignettes were used, creating panoramic virtual tours, in which consumers encounter the environment in an inter-active way, visiting all three floors. As vertical circulation is more dynamic than static and has a strong relation between several floors, this type of methodology seems to be most appropriate.

Results

To identify the preferred environment for vertical circulation, two choice experiments show significant relations between vertical circulation and the encountered environment.

Choice experiment 2 (DCA2): Of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

From the ranking of importance of attributes related to the preferred environment, it seems that the ground floor is considered attractive and stimulates to go upstairs, if it supports the ease consumers can orientate and circulate. One might say that the ground floor needs to address the ‘comfort of the known’ with strong visual lines, daylight entrance and multiple elevation points (table 42).

<table>
<thead>
<tr>
<th>DCA 2: In which shopping mall do you feel most invited by the ground floor to visit the upper floor?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 80% Visual lines</td>
</tr>
<tr>
<td>2. Daylight entrance from roof</td>
</tr>
<tr>
<td>3. Multiple elevation points</td>
</tr>
<tr>
<td>4. Presence of art</td>
</tr>
<tr>
<td>5. Warm Materials/colors</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>COMFORT OF THE KNOWN</td>
</tr>
<tr>
<td>EXCITEMENT OF THE NEW</td>
</tr>
</tbody>
</table>

Table 42: Rank of importance attributes DCA 2

Choice experiment 3 (DCA3): Of which shopping mall, does the ground floor invites you most to take the stair to the next floor?

In choice experiment 3 the emphasis was on the upper floor. There the outcome seems to strongly emphasize leisure-activities and the results seems to focus on aspects referred to as ‘excitement of the new’. This compares rather well to results from the case studies (table 43).
These results bring an answer to the main question:

**Which characteristics of the encountered environment in a shopping mall do affect the preferences for vertical circulation of consumers, and to what extent are their preferences for vertical circulation influenced by their personal characteristics?**

Consumers seem to prefer a shopping mall with a ground floor that allows them to orientate. They feel invited to vertically circulate in a shopping mall with a ground floor that has strong visual lines, with daylight from the roof. They preferred a ground floor with either warm or cold colors to a gradient from cold to warm. They felt attracted by art and they seem to prefer the double stairways and the single stairway respectively, to the express stairway. It seems that the ground floor is considered attractive and stimulates to go upstairs if it supports the ease consumers can orientate and circulate.

Regarding the attractiveness of the upper floor, the outcome seems to strongly emphasize leisure-activities. Respondents preferred the Gastro boulevard at the upper floor and highly valued a crowded upper floor that has lots of daylight and laminate floor in a shopping mall that had colder colors/materials at lower floor as well as vertical parcelation and an open spacious design of the shopping mall at the ground floor. These results seem to emphasize aspects referred to as ‘excitement of the new’ and compare rather well to results from the case studies. Consumers want to feel protected (Sinke, 2010) and more comfortable when perform leisure-related activities. It needs to bring diversity, comfortable daylight, crowding and makes use of warm materials. It compares to a kind of ‘coziness’, not staying in a too museal environment (Bont, 2010) with cold materials and uniform shopping facades.

This indicates that shopping malls should address ‘Comfort of the known’ on the ground floor to stimulate consumers to vertical circulate. An environment related to ‘Excitement of the new’ should be addressed on the upper floors to let consumers stay. It is thought that a stimulation of vertical circulation could lead to additional time spent inside a shopping mall, affecting retail profits. To address this, further research should be performed.

**Influence of personal characteristics**

Two tentative profiles were derived from the data. The first profile describes the type of consumer which values shopping the most, receiving most pleasure while shopping. The second profile describes the type of consumer which values shopping the least, receiving the least pleasure when shopping. As pleasure leads to more time spent, increasing the likeliness of vertical circulation, the first profile is most interesting to analyze in relation to the attributes. There appears to be a significant relation between utilitarian shoppers and the preference for multiple elevation points in order to stimulate vertical circulation. Utilitarian shoppers prefer to have multiple entrances and exits from upper floors. This seems to refer to the economy of movement, in which consumers

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**Table 43: Rank of importance attributes DCA 2**

<table>
<thead>
<tr>
<th>DCA 3: In which shopping mall, the upper floor attracts you the most?</th>
<th>EXCITEMENT OF THE NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anchor Gastro Boulevard</td>
<td></td>
</tr>
<tr>
<td>2. Daylight entrance from roof</td>
<td></td>
</tr>
<tr>
<td>3. Vertical parcelation of individual facades</td>
<td></td>
</tr>
<tr>
<td>4. Crowding upper floor</td>
<td></td>
</tr>
<tr>
<td>5. Several alternatives</td>
<td></td>
</tr>
<tr>
<td>6. Gradient of materials/colors</td>
<td></td>
</tr>
</tbody>
</table>
like to spend the least effort in order to circulate and waste a minimum of time with task-related shopping.

Furthermore, it seems that hedonic shoppers have a strong preference for leisure oriented activities, compared to utilitarian shoppers. Utilitarian shoppers also seem to prefer the use of warm materials over cold materials or gradient in colors/material. They seem not eager to be surprised by the use of gradient, but might a less changing environment.

10.2 ADVICE

This research was envisioned to improve future retail developments of multiple layered shopping malls within the inner-city. In doing so, the advice for future development in relation to vertical circulation could be sub classified into two sections: developer’s process and developer’s project.

Developer’s process

In current development processes, profiling of consumers is most used for the branching, rather than for the design. As different type of people prefers different environments, it is advised to use profiling also in the design phase. Instead of the linear design process of concept-design-implement-test, the design process is advised to change into concept-design-test-evaluate-adapt-implement. Instead of testing the design to the perception of consumers when the development is already realized, the design could now be tested and evaluated within the design phase. Testing and evaluation in the design phase is likely to create a more specific retail environment for the type of people that are likely to visit the future development. This improves the chance consumers will vertically circulate, maximizing retail profits.

Developer’s project: Forum Rotterdam

One of the motives for this research project has been the shopping mall Forum Rotterdam, a future development located within the inner-city of Rotterdam. To give substantiated advice about improving vertical circulation of this development, the design of Forum Rotterdam has been used to test different aspects to the preferred environment of potential consumers, now shopping at Alexandrium Rotterdam.

Advice on improving vertical circulation

Based on this research on the design of Forum Rotterdam, the following advice about the retail environment could be given, to improve the chance consumers will vertically circulate. The advice could be ranked according to on importance, with the first attribute being the most important.

VISUAL LINES: Of all design characteristics, visual lines are most important for consumers in order to vertically circulate or not. Consumers prefer to have a good visual connection with their destination and if not, they are likely to avoid vertical circulation. Visual lines should be primary in the design of Forum Rotterdam, opening up towards above and providing a strong visual connection with destinations.

DAYLIGHT: Consumers walk towards daylight and if not present, consumers are likely to feel more aware of shopping on the upper floor in a closed box. A fully open glass roof creates a better feeling and positions the upper floor as the second ground floor, in which a reference can be made to walking outside inside the shopping streets. Consumers are less unforced and aware of shopping inside a shopping mall, which is
especially advised to implement in several layered shopping malls, such as Forum Rotterdam.

**MULTIPLE ELEVATION POINTS:** Consumers prefer the ease of shopping. Not only visual lines have to be present towards destinations, but they should also have to minimize the effort to reach these destinations. Consumers prefer the presence of multiple elevation points, in which the consumer does not have to walk a long distance and can easily enter or exit a shopping mall from every position inside the shopping mall. It is primary for Forum Rotterdam to create multiple elevation points with a strong visual connection between these elevation points.

**ART:** Art in the form of artificial in-motion lighting makes it exciting to vertically circulate. Former developments have already showed that these types of art create a different experience, attracting the eye and pulling consumers towards above. Forum Rotterdam should implement art, but always have to keep in mind not to block off visual lines towards destinations and/or daylight entrance.

**MATERIALS/COLORS:** Warm materials/color use is preferred. As consumers in the Netherlands are not confronted with many multiple layered shopping malls within the inner-cities, they are likely to refer to inner-city street profiles. To adapt to its environment, Forum Rotterdam should make use of the inner-city street profiles, creating an extension to the street profile, rather than a standing alone object.

*Advice on improving the attractiveness of an upper floor*

Besides the advice which directly has influence on vertical circulation, this research has also looked at which retail environment on the upper floor is most attractive and pleasant to stay. Instead of a direct relation with vertical circulation, the attractiveness of an upper floor does have an indirect influence on vertical circulation. It is likely the attractiveness of an upper floor improves the chance consumers will visit this floor again. The advice could be ranked based on importance, with the first attribute being the most important.

**LEISURE:** Leisure activities seem to be most rewarding for vertical circulation. Consumers prefer the ambiance of an open square, offering terraces with an outside view in combination with green and open floor plans. This ambiance creates a more ‘naturally’ built environment, in which consumers can enjoy, relax and stay without being forced upon to buy. As consumers use shopping malls more and more for social contact, Forum Rotterdam should make use of the attractiveness of Leisure.

**VARIATION:** Forum Rotterdam should make use of individual retail facades, creating a variation related to inner-cities. The streets are dynamic and not uniform, offering a form of surprise and attractiveness.

**ALTERNATIVES:** Consumers are affected in their choice of attractiveness based on the open design of a shopping mall. It has to be an extension of the street, rather than a closed box. Consumers can leave or enter the mall through various directions which optimizes the comfort level of a shopping mall.
10.3 DISCUSSION

The discussion illustrates the point of view from which this research is interpreted. It describes how is dealt with critical review points in order to justify the outcome of this research.

Interpretation of results for future developments in the Netherlands

Consumers in the Netherlands are not used of multiple layered shopping malls located within inner-cities. As they are not confronted many with several layered shopping malls, little insight could be given into what extent Dutch consumers are willing to vertically circulate.

This research has been explorative and have made use of case studies and a survey to pinpoint what design characteristics have effect on vertical circulation, rather than addressing the question to what extent consumers are willing to perform additional effort when these design characteristics are present.

To create some insight to what degree design characteristics have effect on the willingness to vertically circulate, the here described approach translated the design characteristics into quantitative figures, offering a rank of what seems to be the most important design characteristics. This does not directly show the extent to which consumers are willing to vertically circulate, but it does show in what extent the consumers prefer the design characteristics in order to vertically circulate.

Experience of vertical circulation

Vertical circulation is seen as dynamic and is therefore hard to translate into a model which represents the dynamic aspect. In order to do so, the research made use of virtual tours on several floors. The virtual tours made an automatic 360 degrees, offering full sight on every floor. After visiting the ground floor, consumers circulate from ground floor to upper floor, tried to catch the dynamic aspect of vertical circulation. As consumers vertically circulated to the next floor, they always kept a visual sight with the ground floor of which they entered the mall.

This model tried to capture the shopping mall design in its total context, rather based on images. Consumers based their preferences in relation to vertical circulation not on one image, but on the visit of a shopping mall on several floors, creating a more dynamic environment. However, one of the three discrete choice questions seemed not to be well formulated, and this might need further work in future.

Interceptive approach

An interceptive approach has been used for this research, approaching consumers while shopping within shopping mall Rotterdam Alexandrium. An interceptive approach has the disadvantage that the respondents are selectively chosen by the interviewer, based on the interviewer’s personal characteristics, even when trying to avoid this kind of bias.. In order to offer a solution, several people with a different background interviewed consumers within the shopping mall, rather than just one interviewer. The results offered a broad scope of different people selected with other cultural and educational background.
The interceptive approach, compared to a questionnaire online, has the advantage that consumers are emotionally and psychologically set on shopping itself. For example, when located behind a computer, consumers do not have any budget or time restriction that would influence their preference. It also offers a broader catchment area, translated into different cultures and ages, which are not likely to participate in an online questionnaire.

**Time of the Year**

The time of the year the field research was performed, had effect on the results. It was just before Christmas and a lot of schools were closed, making shopping more a family oriented experience in which consumers had the purpose to buy Christmas gifts. The advantage of this period was the number of respondents that is likely to be higher, compared to a more quiet period. In order to still create a different set of consumers that participated in this research, the survey was run over a time period of 6 days, including all weekend days. The position of the interviews within the mall also improved the scope of respondents. It was located on a cross point in the mall in which the majority entered the mall from the train station and subway. From this point on, they would either circulate into the direction of fun-oriented products (fashion, shoes, etc.) or into a direction of run-oriented products (Albert Heijn).

**Number of respondents**

The number of respondents is relatively low, which has effect on the reliability of the outcome of this research. However, the methodology of this research has made use of a partial profile, making it possible that consumers do not have to see all possible combinations of retail environments to still create a reliable outcome. As this methodology is used, fewer respondents are necessary to still create a reliable outcome, but this does not mean that the sample is somewhat small.

**Location**

The location of a shopping mall is of importance in relation to the personal circumstances of consumers visiting a shopping mall. A shopping mall in Amsterdam would attract different types of consumers compared to Rotterdam. An inner-city shopping mall would also attract different types of motives compared to a peripheral shopping mall. The research has focused on Rotterdam, as advice would be given on Forum Rotterdam, located in the direct environment. The study has reflected upon the target group of Forum Rotterdam by using an interceptive approach in shopping mall Alexandrium Rotterdam. It might have yield different outcomes with some other sample.
10.4 THE FUTURE

In order to perform further research, recommendations are given based on practical and theoretical experiences.

Advice for existing shopping malls

After a presentation for MAB Development, J.Sinke has identified the purpose of this research for existing shopping malls. Instead of future developments, existing shopping malls could be judged upon for specific advice. The suggestion is that the used approach creates the possibility for a model that identifies ‘weak’ locations within current shopping malls and offers insight in the problematic functioning of these environments. This possibility has already leaded to performing a new case-study for Corio. In the near future specific advice on Alexandrium Shopping mall, will be provided to Corio as of how to improve the circulation inside the shopping mall, maximizing retail profit.

Advice for future developments

MAB development mentioned that the outcome of this research does correspond with reality. This makes the research reliable in translating design into a practical decision tool to test retail environments. At this moment, there is still a lack of research between the design of a shopping mall and the test of the practical perception by the consumer. For example, this research has made it possible to test design characteristics such as visual lines, which could not have been identified before in earlier research. Based on these insights, further development of this study is recommended to have a positive effect on future retail developments.

Financial implications

This research could also look at the financial implications of retail design. To do so, shopping mall Centrum Galerie Dresden had been evaluated. The design process has been visualized in relation to the financial consequences. It showed what kind of effect the changes in design had on the actual retail profits. Based on this research, Multi has shown interest to address this possibility for further development.

Specifications of attributes found to be significant in relation to vertical circulation

In this research, some attributes found to be significant in relation to vertical circulation. Especially attributes such as visual lines and daylight seem to be dominant. As this has been an explorative research to identify the attributes that are significant, only 2 attribute levels have been used. The attribute levels found to be significant could be tested in more detail. At this moment, the attribute levels are a) visual lines towards the upper floor and b) no visual lines towards the upper floor. It is recommended to use more attribute levels in order to identify to what type of visual lines are most preferred. This is also recommended for other attributes found to be significant in relation to vertical circulation.

Interactive program

The interactive program now makes use of virtual tours per floor, identifying the retail environment of a shopping mall in its total context. In order to look to what extent consumers are willing to perform effort to vertically circulate, further development of the interactive program is necessary. This could be done by making it interactive in flash, in which consumers can choose a direction to circulate. This interactive part will...
clarify whether consumers are at all willing to vertically circulate, when other options such as horizontal circulation are offered.

More respondents, locations and different time of the years

More respondents on different locations could make the research outcome more reliable. Performing these studies also at different time of the years contribute to more valid outcomes.

Field work

The case studies showed some problems, which could have been avoided. For instance, to perform case-studies, two aspects are of major importance. The first one is to get as much transparency in the number of passersby to identify the actual routing and weak spots. This still seemed to be a problem for many case-studies, as little transparency was offered by developers. In further research, it is recommended when this transparency is not present, to use a structured system for discovering routing patterns. Further research should identify the routing patterns, by counting the number of passersby within a time frame on several times per day and on several positions within the mall. Based on some case-study interviews this type of analytical review seemed to have a rather good match with the actual routing patterns. The second aspect is to have a legitimate validation from the center management for taking pictures within the shopping mall. When not present, no pictures can be taken.

Also when using an interceptive approach, it is recommended to look at the presence and speed of the internet connection. Because of the low connection speed in shopping mall Alexandrium, the harddrive on the laptop had to be used for showing the virtual tours, while answering the questions using internet. This was not optimal and if possible, it is recommended to avoid these types of complications.
11.1 LITERATURE


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11.2 WEBSITES

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11.3 GRADUATION PROJECTS


11.4 PERSONS

De Bont, B. (12-7-2010) *Interview vertical circulation*. Multi, Gouda


Veenendaal, J. (03-09-2010) *Interview case-study Bijenkorf*. Bijenkorf, Rotterdam
APPENDIX
APPENDIX 1: CASE-STUDY INTERVIEWS (DUTCH)

Interview 1

Name: B. de Bont
Function: Architect
Company: T&T Design
Date: 12-6-2010/22-7-2010

Interview 2

Name: P. van den Berg
Function: Stratoloog
Company: Perspectives
Date: 25-08-2010

Interview 3

Name: J. Veenendaal
Function: Store director
Company: Bijenkorf
Date: 03-09-2010

Interview 4

Name: J. Sinke
Function: International retail director
Company: Mab Development
Date: 25-09-2010

Een goed hoofdpad wordt gekenmerkt door enkele aspecten:

- Het dient behapbaar te zijn in omvang. Als voorbeeld een project in Istanbul waarin je 10 km in 3 lagen aflegt om het hele circuit af te leggen. Consumenten doen dit niet.

- Een hoofdpad dient voldoende verrassing te bieden. Door bijvoorbeeld gebruik te maken van andere materialen en verschillende bochten, kan de consument naar het volgende punt getrokken worden. Hierbij is ook weer van noodzaak dat paden niet te saai zijn en niet te lang zonder onderbreking. Je legt 30/35 meter af en dan ga je weer de hoek om. Je dient als het ware te slenteren net zoals in de stad.
Het open en gesloten spel naar andere verdiepingen is ook een kenmerk van verrassing om verticale circulatie te stimuleren. Belangrijk is dat niet alles wordt prijsgegeven, maar dat de consument ziet dat er zich iets afspeelt op de lager-en hogergelegen verdiepingen.

- Een hoofdpad dient overzichtelijk te zijn. Het is fijn om te zien waar je naartoe gaat. Consumenten lopen naar verwachting liever naar een einddoel dat ze zien, dan dat ze om een cilinder heen lopen waar ze niet naar de overkant kunnen kijken. In het begin is het altijd spannend wat er om de hoek zit, maar dat heb je na 2x ook al gezien en dan wordt het alleen irritant als je er niet direct naartoe kan lopen.

- Een hoofdpad dient simpel te zijn. Laat de consument zo min mogelijk keuzes maken in een richting om te circuleren, want dan is de ene wel goed en de andere niet en dan komen ze bij de andere nooit meer. Bij teveel alternatieven raakt de consument de helderheid van het ontwerp kwijt en zal hij afhaken.

- Een goede positie van roltrappen is van groot belang voor een routing. De roltrappen moeten duidelijk zijn te vinden voor de consument en moeten centraal staan. Villa Arena heeft hier bijvoorbeeld in gefaald, waardoor je grote afstanden op de verdiepingen moet afleggen.
- De route dient een duidelijke bestemming te hebben. Geen routes naar niets toe.
- Consumenten vinden het leuk om te slenteren. Net zoals in de stad: steeds een stukje nieuw ontdekken! Dit kan ook de kracht zijn van een winkelcentrum om te zorgen dat de consument over alle lagen circuleert en steeds weer nieuwe dingen ontdekt. Van belang is het om ervoor te zorgen dat consumenten niet alleen naar de bovenste verdieping circuleert voor een trekker en vervolgens weer direct naar beneden circuleren zoals bij 7th in Dusseldorf.

Het is moeilijk te zeggen of mensen liever naar -1 gaan of +1. Ik ga liever naar +1 toe en minder graag in de kelder. Misschien is het lopen naar het licht een meer aangename ervaring dan het ervan wegvallen.

Alhoewel succesvolle concepten zoals Duisburg tot +1 gaan, heb ik een sterke twijfel of consumenten meer verticaal circuleren. Ik denk het niet, omdat mensen altijd net zoals in de stad lekker op plat niveau willen blijven slenteren en steeds meer nieuwe dingen willen ontdekken. In een winkelcentrum is dit moeilijk te realiseren en kost het de consument gewoon te veel moeite om verticaal te circuleren. Een goede foodcourt kan wel een oplossing bieden, maar biedt het gevaar dat consumenten niet op de verdiepingen circuleren maar alleen heen en weer naar de foodcourt.

Van belang is dat het winkelcentrum gelijk goed in elkaar zit, anders zal het altijd een zorgkindje blijven. Het gevaar hierin is dat consumenten gefrustreerd raken door het ontwerp en vervolgens nooit meer terugkomen, terwijl die winkels moeten blijven verkopen. Ik kom bijvoorbeeld nooit meer in Myzeil en Villa Arena.

**Belanghebbenden**

**Consument:** Je ontwerpt voor de consument. Zonder consument is er duidelijk geen afzetmarkt en zijn er ook geen retailers. Je moet zorgen dat je consument wordt aangetrokken, het er aangenaam heeft en uiteindelijk gaat kopen.

**Retailers:** Retailers weten vaak precies welke hoekjes niet en wel interessant zijn binnen het ontwerp. Retailers blijken hierdoor ontzettend veel kennis te hebben over het circulatiegedrag van consumenten. Als ontwikkelaar wordt niet altijd de kennis gebruikt die retailers gebruiken om hun locatie binnen een winkelcentrum te bepalen.

**Architect:** Wij moeten een mooi gebouw functioneel maken. Dat heeft Koolhaas bijvoorbeeld gedaan in Tsjechie. Of de consument er wel of niet gaat lopen, daar zijn we al 2 jaar mee bezig. Vanuit een bestaand ontwerp is het moeilijk aan te passen en dient alles overlegd te worden met de architect, die hierdoor een belangrijke positie bezit in het spel.
**New Karolina, Ostrava (Tsjechie)**

Het nieuwe winkelcentrum is op dit moment in ontwikkeling bij T&T design en is een ontwerp van Koolhaas. Met dit ontwerp heeft Koolhaas een kleine stad willen maken. Op de onderste 2 lagen wordt geparkeerd, waarna vervolgens 3 lagen omhoog gecirculeerd dient te worden.

Het bijzondere van dit ontwerp is dat er constant een spel is van open en gesloten binnen het gebouw, waarin je constant uitgedaagd wordt om het winkelcentrum verder te ontdekken en op verschillende niveaus te slenteren. De uitdaging vindt niet alleen plaats door het toepassen van open en gesloten ontwerp, maar ook door extra verlichting toe te passen door bijvoorbeeld op de begane grond.

Op de bovenste verdiepingen bevinden zich allerlei functionele en recreatieve trekkers zoals een fashionsquare en een kinderopvang. Naast deze trekkers bevindt zich op de bovenste verdieping een foodcourt met een prachtig buitenterras dat mensen naar boven dient te trekken.

Belangrijk voor recreatieve trekkers is dat ook de man voldoende recreatie wordt geboden. Een man houdt namelijk niet van lang winkelen. Tot nu toe is de recreatie voor mannen ondergeschikt in vergelijking met vrouwen en kinderen.

Interessant in het ontwerp is de routing in het gebouw, waarbij verschillende winkelcircuits zijn aangelegd. Op de bovenste verdiepingen bevindt zich een sportcircuit, waarbij de routing door een sportwinkel heen loopt. Dit is nog niet eerder toegepast door Multi, maar geeft de belangrijke mate van interactie aan tussen individuele winkels en het winkelcentrum als 1 geheel.

**Forum Duisburg, Duitsland**

Forum Duisburg is een makkelijk te benaderen gebouw. Het is een winkelcentrum waarin een middengebouw is opgezet, bestaande uit metalen profielen (referentie staalbouw Duisburg) met daaroverheen een glasdak. Deel van het dak is ook een luifel van het middengebouw, waarin verlichtingselementen zijn verwerkt om het aantrekkelijk te maken voor de consument.

Bij binnenkomst zie je al meteen dat er op -1 en +1 zich iets afspeelt door de vide, wat de consument al direct nieuwsgierig maakt. De routing bestaat verder uit een simpel circuit waarin de consument niet teveel keuzes krijgt aangeboden voor alternatieve routes. Alternatieve routes leiden tot een verplichte keuze waarin 1 alternatief niet aangenaam blijkt te zijn en consumenten in het vervolg er ook niet voor kiezen. Hier ontstaan ook vaak dode stukken door in een winkelcentrum.

Interessant is dat ook deel van de routing ook afgelegd kan worden binnen Karstadt. Het zwakke stuk in de routing ligt achterin, waarin een aansluiting wordt gevonden met een zijhoofdstraat van de winkel hoofdstraat. Blijkbaar voelen mensen zich niet geneigd om in de zijwinkelstraat te winkelen. Dit kenmerkt ook het sterke karakter van het winkelcentrum. Dit winkelcentrum trekt winkelende bezoekers met een bestemming in het winkelcentrum zelf en niet consumenten die het als transit gebruiken van de ene naar de andere plek.

De aansluiting op de metro aan de voorkant is ook ideaal en zorgt dat mensen altijd even erlangs lopen. Wat betreft het parkeren op de onderste lagen, is er een duidelijke orientatie door gebruik van kleuren en
is er een heel helder en overzichtelijke lobby die de consument naar het winkelgebied leidt.

Het aardige aan Forum Duisburg is dat het aangenaam is en veel warme kleuren en materialen zijn toegepast, waarin voldoende variatie wordt geboden om steeds verrassend te zijn. Zo is 1 kant metselwerk en zijn de andere kanten bedekt met verschillende types natuursteen.

Forum Duisburg is ontstaan vanuit de gedachte dat er een binnenstadlocatie gemaakt diende te worden waarin iedereen graag naar binnen gaat. In zijn ontwerp is het als een voortzetting van de hoofdstraat ontworpen, van waaruit het straatprofiel zichtbaar blijft. Consumenten circuleren binnen het gebouw en winkelen vervolgens weer verder op de hoofdwinkelstraat. Dit biedt een vrij laagdrempelige toegang voor consumenten.

Dit concept werkt naar verwachting niet zo goed als er een extra laag zou zijn ontworpen. Consumenten gaan moeizaam naar boven en het wordt daardoor ook moeilijker behapbaar. Het behapbare circuit zorgt voor voldoende variatie en zorgt ervoor dat consumenten de moeite nemen dit circuit ook daadwerkelijk af te leggen.

De trekker Saturn zorgt er ook voor dat de bovenste verdieping interessant blijft voor consumenten. Als je consumenten naar boven wilt laten circuleren, moet je het de moeite waard maken.

**Forum Almeida, Portugal**

Forum Almeida kenmerkt een sterk concept dat veel herhaald is door Multi. Het is een concept dat zich echt leent voor een stand alone winkelcentrum en niet voor een binnenstad.

Het sterke van dit concept is dat het de verrassing blijft houden door het toepassen van variatie in pleinen en routes langs deze pleinen, waarin het wel overzichtelijk is, maar niet alles blootgeeft. De route is behapbaar en ook hier worden warme materialen en kleuren gebruikt om het aangenaam te maken. Mensen willen gewoon lekker slenteren door een winkelcentrum, net zoals in een stad.

Mensen circuleren alleen verticaal door de functionele trekkers en de horeca. Kort samengevat, dit zijn doelgerichte bezoeken aan de 1° verdieping. De interesse van deze consumenten wordt onder andere getrokken door het toepassen van verlichting in de hal.

**Centrumgalerie, Dresden**

Centrumgalerie Dresden is een grote mall waar je naar binnenloopt en tegen een enorme Kathedraal loopt. Een deel van de mall (de steeg) loopt niet goed omdat er geen einddoel is. In Dresden is het boven parkeren van waaruit een hele lange roltrap als een waterval naar beneden gaat. Je kijkt als het ware door een enorme gat van de mall. Uiteindelijk kom je op +1 terecht, waarna je kan gaan zwerven.

Dresden loopt niet echt lekker. De verwachting is dat het wegnemen van momenten van verrassing een onderdeel speelt. Als je naar beneden circuleert, heb je direct overzicht over de verdieping waardoor je minder snel gaat slenteren. Daarnaast is het ook vrij donker op verscheidene plaatsen. De positie van de roltrappen is waarschijnlijk ook niet optimaal. Doordat de roltrappen achter elkaar lopen, is dit ook de hoofdroute en dient de consument de hoofdroute af te breken als deze wil circuleren op een verdieping.
Het eerste ontwerp van Dresden had een dubbele mall met een rondloopcircuit. Dat is veranderd omdat de omvang van de winkelunits in het midden te klein was. Door uiteindelijk dit ontwerp te maken, veranderd de hele routing. Op dat moment realiseer je eigenlijk niet goed wat het teweeg brengt.

Dresden is verder misschien ook te hard en te museaal. Je kunt nooit ontduiken van dit karakter en gaat er waarschijnlijk minder snel op een terrasje zitten. Het museale karakter zorgt er ook voor dat zelfs de positie van een kerstboom al bepalend kan zijn voor de architectuur. Het voelt als een winkelcentrum dat misschien te mooi gemaakt is door de architect. Hierdoor heb je voor je gevoel ook minder vrije bewegingsruimte.

*Alexandrium 3, Rotterdam*

Alexandrium 3 vind ik wel heel goed! Dit is parkeren boven, waaruit je vervolgens naar de verdiepingen circuleert. Alexandrium 3 is behapbaar en anders dan Villa Arena. Het is goed **overzichtelijk**, maar biedt ook nog voldoende **verrassing**. Het geeft een aangename sfeer en is een beetje chaotisch en rommelig. Voor mijn gevoel heeft een winkelcentrum dit misschien wel nodig.

*Pforzheim, Duitsland*

Pforzheim heeft een simpel circuit met 3 lagen, waarin een cilindervorm de core vormt voor het geheel. Ondanks dat het rond is, is dit winkelcentrum **aangenaam**.

Aangenaam zijn de mooie bakstenen op de grond, de gemetselde penanten, het marmer en de verschillende types natuursteen. Dit komt overeen met wat Hans van Veggel altijd zegt: gebruik warme kleuren en materialen, bogen erin, maak het niet te donker.

Het heeft daarnaast ook een bepaalde vorm van **verrassing**. Het mediterrane karakter is een tegenstelling van het relatief grauwe stratenprofiel van Duitsland, waarin voornamelijk veel pleisterwerk wordt gebruikt en weinig met baksteen en warme kleuren wordt gewerkt. Hier moet je dus ook geen gruw gebouw neerzetten.

Ik geloof ook dat dit verder een deel van de kwaliteit van het winkelcentrum bepaald. Als je kijkt naar Koopgoot en de Kalvertoren zijn dat ook twee projecten die dergelijke hoogwaardige **materialen** gebruiken.

*Myzeil, Frankfurt*

In Myzeil heb je de langste roltrap van Europa die naar +4 leidt. Alleen geven consumenten hier helemaal niet om. Voor ons was het erg omhandig om uiteindelijk vanuit +4 de weg terug te vinden. Vanuit dit oogpunt is de **overzichtelijkheid** voor een consument van groot belang. De consument moet geen opgesloten gevoel krijgen en moet duidelijk inzicht hebben in de routing en de werking hiervan. Het enorme glazen dak voelt ook niet ontzettend aangenaam. Het versterkt alleen het theatrale en museale van het winkelcentrum.

Een aanrader is om naast Myzeil het Shanghaiachtige winkelcentrum te bezoeken.
Onderwerp: Circulatiegedrag van consumenten

Wat voor rol speelt oriëntatie en routing binnen het circulatiepatroon van een consument in een winkelcentra?

Oriëntatie is ontzettend belangrijk. Bij het betreden van een winkelcentrum of nieuwe verdieping moet er duidelijk visueel zicht aanwezig zijn tussen klant en product.

Als voorbeeld van hoe het niet moet is het winkelcentrum aan de Grote Marktstraat in Den Haag een goed voorbeeld. Zodra je binnenkomt kom je binnen in een transformatiezone die je doet denken aan een kille ruimte, die volhangt met schreeuwerige reclame. Je gaat vervolgens de roltrap op maar hebt geen idee waardeze roltrap naartoe leidt.

Binnen de routing zijn paden enorm moeilijk te verleggen. Er is een direct verband tussen de consument en zijn bestemming en hiervan wordt moeilijk afgebogen.

Hoe krijgen de Bijenkorf en Hema het wel voor elkaar om een bepaalde cultuur te trekken en winkelcentra vaak niet?

De ontwikkelaar van een winkelcentrum krijgt nooit het gevoel van een retailer. Hij zorgt voor het gedijen van een winkelcentrum maar dat is anders dan waar retail voor staat. Er wordt door ontwikkelaars daarin vaak tekort gedaan. Binnen welke context wordt het winkelcentrum gerealiseerd en wat is het DNA van de omgeving?

Dit wordt binnen warenhuizen vaak vertaald in de uitstraling en het imago.

Zo verbindt Bijenkorf de producties van de wereld en brengt ze samen in de winkel. Het leeft zich daarbij in op de omgeving en brengt stijl en karakter.

Hema is meer een warenhuis dat heel vertrouwd is en basis blijft, maar wel met een knipoog. Een Hema zit uiteindelijk heel dichtbij de consument en voelt ook vertrouwd. Een Hemawinkel is Nederland.
Hoe wordt ambiance/sfeer gebracht binnen een warenhuis/winkelcentra?

In een warenhuis kom je thuis: een harmonie van signalen is afgestemd op je levensstijl. De signalen zijn onderdeel van een lijstje dat begint met het tekenen op een luciferdoosje. Hoe lopen mensen en hoe kan dit aangenaam worden gemaakt. Toen de etalages open gingen kregen consumenten veelal meer inzicht in waar ze waren. Daglichtinval is daarmee een belangrijk aspect voor de consument om zich op zijn gemak te voelen. Het toepassen van kwaliteit in materiaalkeuze is een ander belangrijk aspect dat een rol speelt of mensen zich behaaglijk voelen. Wees creatief en breng variatie in het assortiment en de aankleding. Breng verrassing in de winkel en hou het spannend. Je moet trendsettend willen zijn en niet trendvolgen en dat dan ook doen met veel bombarie. Helaas is er weinig vet meer aanwezig en dat heb je hard nodig om het leuk te houden.

Wat is kwaliteit binnen een winkelcentrum?

We willen steeds maar niet letten op de kwaliteit die we hebben. Daar worden we nu mee geconfronteerd en daar moeten we over nadenken. Ik wil niet gefaked worden, ik wil gewoon winkelen! We zijn toe aan een nieuwe fase van winkelcentra waarin het niet meer gaat om wie de grootste is. Speelplaatsen staan momenteel leeg en kinderen spelen niet meer. Neem een voorbeeld hoe hier mee om te gaan aan Japan, waar ouderen s’morgens om 7 uur staan te sporten in een park. Wat is openbare kwaliteit van een ruimte nu precies? Het cultuurhuis in Stockholm waar mensen midden in een winkelcentrum zitten te schaken, dat vind ik mooi. Leer begrijpen wat schoonheid is en speel in op je directe omgeving en de levensstijl van de bevolking.

Het Rotterdamse project van Provast (De Markthal) vind ik een interessant project omdat het anders is en inspeelt op de multiculturele achtergrond van Rotterdam. Je moet verder kijken dan alleen het omhulsel. Een ander voorbeeld van een winkelcentrum met hoge kwaliteit en waar je de sfeer probeert is Parijs Bercy, waarbij er een goed hoofdpad aanwezig is, sfeer is gebracht, maar ook een bepaalde gemoedelijkheid. Het houdt zich aan de regels van de menselijke maat.

Wat is het verschil tussen een warenhuis en een winkelcentrum met betrekking tot het runnen van een business?

Bij een Bijenkorf en Hema is er een enorme transparantie van de krachtverhoudingen. Op de vierkante millimeter is precies inzichtelijk wat het bijdraagt aan mensen, omzet en voorraad. Er is een bepaald krachtenveld: wat zou er gebeuren als we een bepaalde
afdeling verschuiven? Actual insights by doing! Dit is niet aanwezig bij winkelcentra maar zo moet je wel denken.

**Hoe kunnen winkelcentra leren van warenhuizen?**

De aansturing van een projectontwikkelaar moet beter. De rol van de regisseur wordt op dit moment vaak vertaald in een kille rationele manier van ontwikkelen, zonder enig gevoel van de omgeving.

Er is daarbij op dit moment een sterke kloof tussen projectontwikkelaar en de bevolking. De ontwikkelaar probeert een sociaal ontmoetingscentrum te creëren, terwijl het eveneens ook geld moet verdienen. Het sociale en commerciële karakter is erg tegenstrijdig.

Het vak heeft een keerpunt nodig waarin meer gekeken moet worden naar de positie die het winkelcentrum inneemt in het leven van de consumenten. Er moet een dialoog tot stand komen tussen de bevolking en ontwikkelaar. Iedereen denkt anders en ervaart daarmee het winkelen ook op een andere manier.
1. ROUTING & FUNCTIONAL LAY-OUT

Wat is van belang bij het maken van een routing binnen een winkel?

Bij het maken van een routing is positionering van de stijgpunten, met name roltrappen, essentieel. Wij hebben het geluk dat er voldoende visie destijds bij het ontwikkelen van Bijenkorf Rotterdam aanwezig was over de positionering van de roltrappen: keurig in het midden. Wat je ziet is dat er een ruimte vrij is rond de roltrappen zodat de consument zich goed kan oriënteren. Vanwege de omvang van het warenhuis is het noodzakelijk om allerlei secundaire en primaire gangpaden neer te leggen. Belangrijk is hierbij dat de consument voldoende bewegingsvrijheid wordt gegeven als deze vanaf de roltrap een verdieping bereikt.

Direct om de roltrappen zijn de primaire gangpaden gecreëerd. Daarachter liggen de secundaire gangpaden die van groot belang zijn om de consument verder je warenhuis in te krijgen anders zijn de winkels te diep en loopt de klant niet de winkel in. Primaire gangpaden zijn zo een 2 meter breed en een secundair gangpad is al snel 1 meter breed.

Belangrijk voor het functioneren van zowel primaire als secundaire gangpaden is dat de oppervlakte van een verdieping niet te groot mag zijn, anders krijg je de klant de winkel niet binnen. Hier is de oppervlakte zo’n 3000/4000 m² en dat werkt goed.

Wat betreft de overige stijgpunten, worden liften vaak gebruikt voor buggy’s en kinderwagens en worden de normale trappen aan de zijkant zelden gebruikt. De hoofdrouting is mede daardoor voornamelijk tot stand gekomen vanuit het binnenkomen op de roltrappen.

Is er een verschil tussen een ronde en vierkant routingsysteem?

De routing van een klant is vaak vanaf de parterre. De consument komt binnen waarbij de kunst is dat hij als de routing wordt afgelegd, alles heeft gezien. We hebben overwogen om eerst een rond routingsysteem te maken, maar dat is ontzettend kostbaar.

Persoonlijk vind ik het toepassen van ronde vormen binnen de routing het best en het mooist. Uiteindelijk is de beste routing vaak de meest simpele routing met de minste alternatieven.
Los van dat winkelt een consument vaak binnen een bepaalde afdeling, waar teveel gebeurd om dergelijke routing daadwerkelijk als een gangpad te ervaren.

Op het gebied van routingsystemen heeft Magna Plaza een grote fout gemaakt. Er zijn te smalle gangpaden, het is er te donker en de routing is niet duidelijk. De plaatsing van de roltrappen is daarin een cruciale fout. Het is gebouwd als postkantoor en functioneert dan ook niet goed als winkelcentrum.

**Hoe zorg je dat consumenten in de hele winkel circuleren?**

Ikea is een goed voorbeeld met een uniek systeem. Je komt binnen en je moet door al die afdelingen heen voordat je bij de kassa komt. Waarschijnlijk door klachten hebben ze uiteindelijk wel een aantal shortcuts gecreëerd. Wat zij ook heel goed doen is op bepaalde punten merchandise stoppers terug laten komen: op de ene plek kom je een lamp tegen, dan weer kaarsjes en dan opeens weer stopcontacten.

Als je naar Ikea gaat denk je ik dat als je om 9 uur erin gaat dat je om 10 uur er weer uit bent, maar in de werkelijkheid zit je er al snel 2 uur in. Je hebt geen tijdsbesef binnen Ikea.

Bij de Bijenkorf is dat anders. Consumenten komen binnen, weten vaak wat ze willen kopen en lopen daar dan ook direct naar toe. Andere consumenten zijn op zoek naar een bepaald product en zijn daardoor vaak langer in de winkel, maar over het algemeen brengen consumenten hier geen halve dag door.

**Is er een verschil met de verdiepingen -1 en +1 qua circulatie binnen de Bijenkorf Rotterdam?**

Over het algemeen is een kelder een slechte etage. In London zit Harvey Nichols en daar heb je een kelder waarbij je moet bukken terwijl je loopt.

Bij ons ervaar je het niet als een kelder. Dit komt voornamelijk door de hoogte van het plafond, de verlichting, maar ook zicht hebben op waar gaan en eruit. Een kelder kan een moeilijke etage zijn in zijn algemeenheid, maar is dat hier niet.

**Heeft de metro-ingang op -1 hier nog invloed op?**

Wij hebben een gunstige ligging ten opzichte van de metro, maar mensen komen over het algemeen binnen op de parterre. De bovenste etages worden over het algemeen het minst bezocht. Dat hangt echter ook weer af hoeveel etages je hebt.

**Hoe zit de functionele lay-out ,binnen de verschillende niveaus, van de Bijenkorf in elkaar?**

Je vindt over de hele wereld bijna dezelfde afdeling op dezelfde etage. Bijna ieder warenhuis heeft parfum en accessoires op de parterre. Huishoud artikelen liggen altijd bovenin of in de kelder, horeca is altijd gepositioneerd op de bovengelegen verdiepingen. Dat zijn blijkbaar ongeschreven regels die wij allemaal de normaalste zaak van de wereld vinden, maar waarschijnlijk heeft iemand daar goed over nagedacht.
Wij doen het assortiment zo indelen zoals wij denken dat het goed is. Wij hebben geen enkel nut bij de klant irriteren, het draait uiteindelijk om omzet.

Is het essentieel dat Horeca op 2e etage zit?

Nee, horeca zou ook op de 3e etage kunnen liggen. Een feit is wel dat je het op de bovenste etages zal plaatsen. Belangrijk is daarbij dat mensen voldoende zicht hebben naar buiten. Het is voor ons daarbij niet essentieel om horeca op de bovenste verdieping te zetten, maar we zouden het wel willen zodat we op de 2e etage weer andere artikelen kwijt kunnen.

De horeca is een verlenging van het pad? Zit hier een doel achter?

Het is enerzijds onderdeel van het winkelen maar anderzijds ook een afscheiding. Via het pad worden mensen verleid om door te lopen. Dit warenhuis heeft één restaurant, wat ervoor zorgt dat het een autonome aantrekkingsskracht heeft. Daar gaan we zitten voor ons kopje koffie met iets daarbij.

Het valt op dat de functionele faciliteiten op de bovenste etage liggen. Wat is de gedachtegang hierachter?

Dat klopt. Op de bovenste verdieping zit een pinautomaat, een postkantoor en de klantenservice, alhoewel we de pinautomaat wel wat lager willen zetten. Klantenservice zit altijd op bovenste etage. De andere functionele faciliteiten is gewoon een service naar de klanten toe. Consumenten pinnen liever in de winkel zelf dan buiten op straat vanwege veiligheid.

Is er een uitbreiding mogelijk van het assortiment?

Ja, de 4e etage is een mogelijke optie om toe te voegen aan ons warenhuis.

Hoe belangrijk is oriëntatie voor een consument?

Vooral in een warenhuis is het van belang dat als je binnenkomt dat consumenten tijd hebben om zich even te oriënteren. Belangrijk daarin is dat het assortiment daarbij niet te dicht op de ingang is geplaatst en dat rekening moet worden gehouden dat consumenten de neiging hebben om rechtsaf te gaan bij binnenkomst. In ons warenhuis kom je vrijwel altijd bij de entree de bakker tegen. Vanuit de entree moet je ook altijd direct zicht hebben op de roltrappen.

Tijdens het verticale circuleren op een roltrap is oriëntatie ook essentieel. De ruimte rond onze roltrappen is helemaal vrij. Als je op de roltrappen staat hebt je een behoorlijk overzicht om je te oriënteren. Wij zijn niet het type winkel zoals HEMA om artikelen dicht bij de roltrap te plaatsen op het zicht. Wij houden het vrij en doen niet mee met die kaarsen, papieren zakdoekjes etc. bij de roltrappen.

Waar wel goed zicht op is vanaf de roltrappen, zijn de etalages. Wij clusteren de etalagepoppen tot 4 gehele decors in plaats van individuele etalagepoppen. Hiermee proberen wij een statement te maken en tevens de klant te verleiden om het gangpad te doorlopen.

De decors liggen midden in de afdelingen en zijn gepositioneerd in alle 4 de richtingen vanuit de roltrap: voren, achteren, links en rechts. De decors zorgen er ook voor dat consumenten niet tot het einde van de winkel kunnen kijken en zodanig nieuwsgierig blijven.
Het zicht naar buiten is minimaal, zit hier een gedachtegang achter?

In 1957 is de Bijenkorf Rotterdam gebouwd dus daar hebben wij niets aan afgedaan en aan toegevoegd. Wij hebben daardoor ook geen enkele mogelijkheid om meer openingen naar buiten te maken.

Een beetje contact met de buitenwereld is niet verkeerd maar teveel is ook onhandig. Het kan vals licht geven en je hebt de ruimte nodig voor de etalages.

Ik kan ook heel moeilijk denken dat het anders moet zijn dan het is, omdat het goed is zoals het is.

Ik denk dat een glazen dak ervoor zorgt dat het heel licht wordt maar dat je niet het effect krijgt dat je buiten loopt binnen een warenhuis. Ik denk dat de functional lay-out meer van belang is. Wat leg je waar neer. Als je bijvoorbeeld horeca met een dakterras zou hebben, dan geloof ik wel dat mensen daardoor verticaal circuleren.
2. EMOTIE

Wat voor imago heeft de Bijenkorf bij de klanten?

Klanten weten ongeveer wat ze kunnen verwachten bij de Bijenkorf: qua sfeer, ambiance en personeel.
We hebben zelden klanten die nog nooit in de Bijenkorf zijn gekomen, mede door ons imago. Dat neemt niet weg dat we er alles aan doen om die klant weer iedere keer hetzelfde gevoel te geven.
Je mag verwachten van de Bijenkorf dat het niet te warm is in de zomer en niet te koel in de winter, dat klanten even kunnen zitten met een bakje koffie, dat er parkeermogelijkheden zijn, dat het schoon is, etc.

Verschilt dit imago ook per Bijenkorf filiaal?

Ja, zo is Amsterdam internationaal gericht en het icoon van Bijenkorf. Daardoor heeft het ook laatst een Louis Vitton winkel geopend. Den Haag is meer een ambtenarenstad en Rotterdam een werkstad.

Hoe wordt de ambiance gebracht?

Wij willen met alles wat we doen (onze uitstraling, winkelinrichting, assortiment, personeelsleden, etc.) afstand nemen van andere collega's zoals V&D en HEMA. Ook op het gebied van damesmode is H&M en Zara een collega.

Wat ons anders maakt dan de collega's is dat we een enorm merkportfolio hebben, misschien zijn het er wel 40. Al deze merken zijn van een bepaald niveau en dat maakt ons toch anders dan de rest en dat is ook onderdeel van het imago. Het imago veranderd ook constant.

Nieuwe merken komen erbij en andere merken gaan weer weg. Desondanks creëren we een soort merkidentiteit: wat kan de klant verwachten.

We hebben laatst onze huisstijl veranderd. Alles is nu blauw met geel en nu zijn we toe aan het signingproject. Zo zijn we altijd bezig in het investeren in onze uitstraling met vernieuwingen. Het is afscheid nemen van een oubollig systeem en een stapje verder in het premium warenhuis wat we wel willen zijn. Voor onze huisstaal en signing gebruiken we geen in-motion. Wel hebben we in-store tv maar dat is meer informatief voor marketing.

Signing is dus een belangrijk aspect binnen de winkel om consumenten te laten circuleren?

Ja. Het nieuwe systeem heeft een betere bewegwijzer voor de consument, waardoor de consument zich nog beter kan oriënteren om naar zijn product toe te lopen.

Probeer de Bijenkorf nog een emotie op te wekken bij de consument?

Dat is de feel-good factor: een combinatie van een heleboel dingen. Muziek niet te hard en niet te zacht. De temperatuur niet te koud in de winter en niet te warm in de zomer. Het gebruik van instore-tv, signing, manier van aankleding binnen de etalages, de collectie. Kort samengevat een combinatie van een heleboel aspecten die een bepaald gevoel moeten geven aan de klanten. Wat volgens mij niet van de grond komt is het werken met geuren.

Je kan de feel-good factor vergelijken met een concertzangeres: ik vind het mooi of niet mooi, maar je hebt geen idee hoeveel erachter zit hoe ze
zo kan zingen en welke technieken ze gebruikt. Zo zit het bij de Bijenkorf ook. De klant moet gewoon niet weten wat wij ervoor doen om het naar hun zin te maken, ze moeten het gewoon naar hun zin hebben. Het liefst zodat ze altijd naar de Bijenkorf willen.

**Denkt u dat consumenten bewust zijn van het verticaal circuleren?**

Vaak wel. Bijvoorbeeld bij de verplaatsing van het assortiment Nespresso van -1 naar 3. Consumenten registreren dit zodanig dat ze wel erbij nadenken van nu moet ik helemaal naar boven voor mijn Nespresso. Een dergelijke verplaatsing van Nespresso is niet bij elk product mogelijk, maar het feit dat wij de enige Nespresso verkoper in Rotterdam zijn, zorgt ervoor dat de consumenten dit blijven opzoeken en daarnaast hoort het gewoon bij afdeling huishoud op de 3e etage.

**Gelooft u dat de oriëntatie vanaf de roltrappen in combinatie met de signing ervoor zorgt dat consumenten minder bezig zijn met bewust verticaal circuleren?**

Nee, ik denk niet dat mensen dat doen. Consumenten zoeken iets in kinderkleding en die gaan daar gewoon naartoe.
3. WINKELCENTRA

Hoe denkt u dat een winkelcentra kan leren van warenhuis

Winkelcentra die goed beginnen maar door het kostenplaatje hun kwaliteit inleveren. Winkelcentra moeten vooral meer zitjes hebben om hier daar te zitten. Dat vind ik bij Westfield goed gedaan. Vooral in een winkelcentrum waar je niet op ieder moment een koffieshop hebt. Het is ook een fenomeen dat alle Horeca op dezelfde verdieping zit dus heb je geen zitjes op andere afdelingen.

Hier en daar zou een winkelcentrum ook gebruik kunnen maken van een pick-up service waar je de boodschappen kan stallen, zodat je in 1x je boodschappen mee kan nemen. Probeer de klant zolang mogelijk binnen te houden. Belangrijk is ook dat het schoon is en goed ruikt. Het moet er vooral niet te warm zijn en zeker met glazen daken heb je dat snel.

Het moet er ook niet te groot zijn. Als je op enorm grote schaal werkt, wordt het oriënteren moeilijk. Als mensen niet simpel hun plek kunnen vinden dan doe je iets niet goed in je routing en signing.

Als je een winkelcentra hebt met nog zijvleugels, dan wordt het al snel ingewikkeld. Je creëert op de lange termijn leegstand zodra er dode plekken ontstaan. Hou de routing simpel met weinig alternatieven.

Wat vind u goed aan bepaalde winkelcentra?

Het neerzetten van trekker op de hoeken. Zo loop je van trekker naar trekker, net zoals wat je in Amerika vindt. Daarmee creëer je dat klanten over de hele verdiepingen circuleren om bij die trekkers te komen.
Mensen preferen om bij binnenkomst vanaf de begane grond direct naar de 4e etage te circuleren in plaats vanaf de begane grond naar de 1e etage volgens mijn passantentellingen. Wat is uw mening hierover?

Juist dat is één van onze Unique Selling points. De 4e etage is binnen het ontwerp gepositioneerd als de 2e begane grond. Aan het aantal passanten te zien die van de begane grond direct naar de 4e etage circuleren is die basis gelukt.

De unieke roltrap gepositioneerd vanaf de begane grond direct naar de 4e etage geeft de consument een bepaalde verrassing. Kunt u dit verder uitleggen?

Het idee van de architect Massimilano Fuksas over het ontwerp van Myzeil gaat over licht en ruimte. Binnen het ontwerp zijn er sterke gebaren gemaakt naar het licht, die uiteindelijk voldoende impuls moeten geven om consumenten naar boven te laten circuleren. In werkelijkheid is deze verrassing iets wat niet in dezelfde mate op elke etage terug kan komen.

Wat heeft de trekker Saturn bewogen om zich op de bovenste etages te vestigen, aangezien dit afwijkt van het normale principe, waar trekkers zich hoofdzakelijk vestigen op de etages met een horizontale aansluiting op de omgeving.
Dat bestaat uit een aantal elementen. Ten eerste de beschikbaarheid van 8.000 m² vloeroppervlak voor een media warenhuis binnen een primair winkelgebied van Frankfurt.

Ten tweede is het bezitten van een gehele etage binnen een winkelcentrum een sterk aspect waarbij Saturn zich geheel kan onderscheiden van de concurrentie.

Voor ons was het positioneren van een trekker tussen de 4e etage en de begane grond één van de prioriteiten om de circulatie tussen deze etages beter te waarborgen. Doordat we met de 3e etage een afwijkend model hebben van het winkelcentrum model, ontstaat er een bepaald circulatie probleem. Op de begane grond, 1e etage en 2e etage is er een mogelijkheid om aan de voorkant van het winkelcentrum verticaal te circuleren. Dit stijgpunt ontbreekt op de 3e etage, aangezien trekker Saturn deze verdieping bezit. Hier is bewust voor gekozen omdat MAB het belangrijker vond de anchoring te waarborgen. Zonder Saturn of andere alternatieven zou het moeilijk worden om de verticale circulatie tussen de begane grond en de 4e etage te waarborgen.

Heeft het ontbreken van een stijgpunt aan de voorkant van het winkelcentrum op de 4e etage invloed op het functioneren van deze etage?

Het ontbreken van dit stijgpunt brengt onbalans met zich mee op de 4e etage, waardoor alles momenteel op de achterkant leunt. Het is te vergelijken met water. Pas als de voorkant op de 4e etage voor voldoende aantrekkingskracht zorgt, komt het weer in balans.

Is de ingang van Saturn op de 4e etage cruciaal om consumenten te stimuleren direct na het binnenkomen van het winkelcentrum op de begane grond naar de 4e etage te circuleren?

De ingang op de 4e etage naar Saturn is niet cruciaal voor het concept. De consument gaat voor de kortste route naar Saturn, wat in dit geval het stijgpunt vanaf de begane grond direct naar de 4e etage is.

Myzeil is gemaakt van prachtige materialen en is in zijn geheel indrukwekkend te noemen. Echter geeft het winkelcentrum voor mijn gevoel een te ‘museale’ indruk waardoor consumenten minder snel geneigd zijn gebruik te maken van de horecagelegenheden. Hoe denkt u hierover?

Dat klopt. Er zijn 3 elementen die aangepakt moeten worden binnen het winkelcentrum. De context waarin deze aanpassingen dienen te worden gemaakt, zijn de brandweervoorschriften. De brandweereisen zijn enorm streng waardoor er extra investeringen noodzakelijk zijn om het winkelcentrum te optimaliseren. Dit is onderdeel van de verklaring waarom bepaalde elementen nog niet zijn aangepakt.

Op -1 dient veel meer een ‘basement’ gevoel te worden gecreëerd. Het is de bedoeling dat er veel meer drukte ontstaat en dat er terrassen komen waar consumenten laagdrempelig gebruik kunnen maken van de zit-en eetgelegenheden. Hierdoor wordt het concept Market Place op deze etage versterkt.

Op de 4e etage is een vervolmaking nodig van het horeacconceopt Gastro Boulevard. De enorme ruimte die nog resteert aan de voorkant van de 4e etage dient voorzien te worden van een invulling die veel meer een ‘buzz’
moet creëren dan nu het geval is. Consumenten zoeken bepaalde beschutting, wat op dit moment sterk ontbreekt op de 4e etage.

De keuze om geen fastfood te positioneren op de 4e etage is een bewuste keuze maar brengt tegelijkertijd met zich mee dat de kleinschaligere slowfood horeca de behoefte moet vervangen. Misschien valt te constateren dat dit eventueel te radicaal is geweest.

_Hoe wordt de horeca op de 4e etage ervaren door consumenten? Als een bestemming op zichzelf of als een tussenstop?

_De doelstelling is om horeca als een bestemming op zichzelf neer te zetten, maar dat is het momenteel nog niet. Dit moet vervolmaakt worden door een sterke clustering en een beter totaal aanbod van horeca. Op dit moment is het vooral rond de lunch of rond diner een bestemming op zichzelf.

_In het ontwerp wordt de basement voor het gevoel volledig afgesloten in vergelijking met de bovengelegen verdiepingen. Waarom is hiervoor gekozen?

_Het antwoord is tweeledig. Ten eerste is het een bewuste keuze omdat het een andere identiteit heeft dan de bovengelegen etages. Het is veel meer convenience shopping met een sterke relatie naar het parkeren toe. De tweede oorzaak heeft te maken met een fysiek aspect, aangezien er 8 meter aan technische ruimte tussen de begane grond en de basement zit, welke overbrugd dient te worden.

_Het enige continu dat sterk aanwezig is tussen de basement en de bovengelegen etages is het naar beneden trekken van het licht. Dit is een belangrijk aspect die het onbehaaglijke gevoel dient weg tenemen van de consument met betrekking tot het niet weten waar een consument zich bevindt. Het kunnen oriënteren binnen een winkelcentrum is één van de succesfactoren voor verticale ontwikkelingen.

_Hoe is tot een bepaalde massa gekomen bij het ontwikkelen van Myzeil?

_De massa is bepaald door de bescheidenheid van de bouwplek. Het is een dure bouwplek waarbij dan ook daadwerkelijk elke centimeter moet worden benut. Hierbij moet wel worden uitgekeken dat de fout niet wordt gemaakt om het volstrekt dicht te zetten met retail toegankelijk via nauwe passages. Dit is een fout die veel wordt gemaakt bij verticale ontwikkeling welke uiteindelijk niet sustainable bleken te zijn.

_Het moet wel een plek zijn waar mensen graag willen zijn. Het is uiteindelijk de kunst van het zo comfortabel mogelijk maken van een winkelcentrum waarin kwaliteitskeuzes dienen te worden gemaakt. Het toepassen van onder andere brede passages en het bieden van veel openbare ruimte in combinatie met het toepassen van water en groen zorgen ervoor dat dit zonder meer is gelukt in het ontwerp.

_De massa moet uiteindelijk wel behapbaar blijven en zich vasthouden aan de menselijke maat.

_Wat zorgt ervoor dat een consument zich aangenaam voelt in een winkelcentrum?

_Er zijn twee hoofd motieven. Ten eerste is het bieden van gemak en comfort. De consument moet het idee krijgen dat deze volledig in
controle is. ‘Ik vind hier alles en hoef me geen zorgen te maken, want mijn shopping trip is succesvol, hoe dan ook’. Het andere aspect speelt in op de belevenis en het ondokken van een winkelcentrum. Consumenten moeten worden blijven verrast om het elke keer als een nieuwe belevenis te ervaren.

Het één heeft te maken met het comfort van het bekende (wat de consument nodig heeft) en het andere heeft te maken met de uitdaging van het onbekende (wat de consument wil ontkennen). Daartussen moet een balans gevonden worden met heldere structuren zonder dat het in saaiheid vervalt.

**Is het een gevaar dat consumenten in saaiheid vervallen als ze de roltrap vanaf de begane grond naar de 4e etage hebben genomen en in feite het gehele winkelcentrum hebben gezien?**

De trap op zich is zowel een doel als een middel. Het zal dus iedere keer een waardevolle tocht moeten zijn. Zodra consumenten het onbehagen krijgen dat ze weer 44 seconden op de trap staan en vervolgens weer helemaal naar beneden moeten circuleren, dan houdt het op. Echter wordt het tot nu toe als een uitermate sterk en plezierig element ervaren. Consumenten vinden het leuk en de moeite waard. Bij binnenkomst wordt de consument een bepaalde oriëntatie naar bovengelegen etages ontnomen. Is dit één van de aspecten die ervoor moeten zorgen dat consumenten de roltrap van de begane grond naar de 4e etage nemen?

Ja. Zodra consumenten op de roltrap staan ontstaat er een bepaalde ontdekking waarbij consumenten door het open en gesloten spel van het ontwerp circuleren en zich op het mooiste plekje van het winkelcentrum bevinden.

**Benadrukt de roltrap van de begane grond naar 4e etage de achterkant van het winkelcentrum, waardoor weer die onbalans bestaat tussen een voorkant en een achterkant van het winkelcentrum, zoals op de bovengelegen etages ook al het geval is?**

Ja. Er moet altijd een keuze worden gemaakt. Myzeil is één van de allerdrukkste straten van Duitsland, dus de consumstenstroom naar binnen is wel aanwezig. De uitdaging is om te kijken hoe je consumenten zo ver mogelijk en hoog mogelijk het winkelcentrum in krijgt. Vervolgens moet je het gaan managen en daar ligt de opgave. Zo ook aan de voorkant van het winkelcentrum, voornamelijk op de 2e etage.

De structuur dient vervolmaakt te worden, eveneens als het brengen van een bepaalde verrassing door het aanbrengen van variatie. Daarin ligt de opgave voor de komende jaren.

**De materiaal-en kleurenkeuze zijn in het gehele centrum nagenoeg hetzelfde. Waarom is hiervoor gekozen?**

Hier ligt ook een uitdaging voor de komende jaren. De indruk op de 3e en 4e etage geeft een heel aparte sfeer, terwijl op de ondergelegen etages minder sterk onderscheid wordtgemaakt.

In eerste instantie is gekozen om op elke etage variatie te brengen in kleur en materialisatie. Hiermee zou een bepaalde spanning worden gecreëerd tussen de etages. Helaas is dat gesneuveld in de voorfase, onder andere door de forse investering.
Achteraf is hier misschien te snel vanaf gezien, omdat het de theme worlds op elke etage als bestemming aanzienlijk had versterkt.

Familierestaurant en speelparadijs VIIZ op de 4e etage wordt ervaren als een goed bezochte doelgerichte bestemming, waarbij een gevoel wordt gecreëerd dat men niet aanwezig is in een winkelcentrum. Is dat ook het gevoel dat men wil creëren?

De 4e etage op zichzelf moet meer gaan leven door het aantrekken van meer consumenten. Het is een working progress en dit centrum zal dat altijd in zich houden. Er staat een infrastructuur en architectuur die van alle tijden kunnen zijn. De branchering is aardig goed gelukt, echter zou er nog een extra anchor kunnen komen met een intern verticaal stijgpunt om meer flows van consumenten te genereren op de bovenste etages.

**Wordt de trekkracht steeds minder sterk op de hogergelegen etages van een trekker?**

Nee. Winkels zoals S. Oliver trekken individueel consumenten naar binnen en spuwen ze vervolgens op de bovenste etages in het winkelcentrum uit.

**Ik kan me voorstellen dat consumenten eerder op de begane grond binnen komen in het winkelcentrum dan dat ze via een trekker op de 2e etage binnen komen?**

Daar is veel onderzoek naar gedaan tijdens de programmering. Waar komen de consumenten vandaan en hoe trekt men die het winkelcentrum in. Myzeil heeft bijna 100 meter front en het is niet mogelijk om één grote opening te maken, aangezien dit tegelijkertijd het duurste stuk van het winkelcentrum is.

Uiteindelijk komen er een aantal individuele winkels die niet veel doen voor het winkelcentrum, afgezien van huur opleveren. Vervolgens zijn er nog 2 à 3 winkels over die je daadwerkelijk kan gaan gebruiken om consumenten naar binnen te trekken. Deze winkels dienen voldoende interne trekkracht te hebben om consumenten van de straat naar binnen te trekken en ook nog eens een keer die interne kracht binnen het winkelcentrum hebben.

Het is daarbij ook inspelen op een bepaalde marktwerking. Ondanks dat branchering uiterst belangrijk is, moet er echter ook een maximale financiële compensatie tegenover staan.

**Signign is één van de instrumenten om consumenten wegwijs te maken in het winkelcentrum. Opvallend is dat het bij veel winkelcentra toch iets meer op de achtergrond aanwezig is. Hoe is hier binnen Myzeil mee omgegaan?**

Dat is een bepaalde spagaat waar een winkelcentrum zich in bevindt. Enerzijds wil je consumenten zo lang mogelijk vasthouden om meer tijd door te brengen in het winkelcentrum dan de consument uiteindelijk van plan was. Anderzijds dient de omgeving ook een rustige uitstraling te geven anders wordt de consument overstroomd met informatie. De consument wordt hier alleen maar onrustig en onzeker van.

Een externe invloedsfactor is de positie van bepaalde trekkers die als het ware eisen om signing toe te passen als een vorm van reclame.
Op de 4e etage is het vrij warm door het glazen dak. Hoe is dit te beheersen?

De extremen van een warme zomerdag en gure winterdag laten zich lastig beheersen. Daarnaast wordt er enorm veel interne warmtelast gecreëerd. Vanuit de aspecten duurzaamheid en financiën kunnen er niet eenvoudig weg grote koelinstallaties worden geplaatst, waardoor deze kwestie een apart vraagstuk is.

**Uit de theorie blijkt dat cultuur een grote invloed heeft op retail. Wat zijn volgens u de verschillen tussen de Duitse cultuur en de Nederlandse cultuur en hoe vertaalt zich dat in retail?**

In Duitsland is het super goedkoop of super duur. Het gebied ertussen is veel minder dominant dan in Nederland.

Over het algemeen ligt het prijsniveau in Duitsland ook beduidend lager, maar de vraag naar retail is groter. In Duitsland is ook vaak regionaal gebonden retail aanwezig in winkelcentra, wat in Nederland nauwelijks het geval is.
### Aspects

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<th>Palladium</th>
<th>Myzeil</th>
<th>Forum Duisburg</th>
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<tbody>
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<td>A.2 Position of anchors</td>
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<td>A.4 Form of routing</td>
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<td>B.4 Position of leisure</td>
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<td>C.2 Visual lines consumer-exit</td>
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<td>F.6 Size</td>
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APPENDIX 4: QUESTIONNAIRE

1. Deel A: achtergrondinformatie

   Wat is uw geslacht?
   ☐ man
   ☐ vrouw

2. Wat is uw leeftijd?
   ☐ ☐ ☐

3. Wat is uw hoogste met diploma afgeronde opleiding?
   ☐ Lagere school, basisschool
   ☐ Lager beroepsonderwijs, VMBO
   ☐ Mavo, MULO, VMBO-T
   ☐ Middelbare beroepsonderwijs
   ☐ Havo
   ☐ HBS, Atheneum, Gymnasium, VWO
   ☐ Hoger beroepsonderwijs
   ☐ Universiteit, wetenschapelijk onderwijs
   ☐ Andere:
   ☐ ☐ ☐

4. Ik ben op dit moment:
   ☐ Student
   ☐ Werkzaam
   ☐ Werkloos
   ☐ Opgesloten
   ☐ Andere
   ☐ ☐ ☐
5. Wat is uw postcode?

   Nota: bijvoorbeeld 1111 AA

6. Wat is uw gezinsomvang?
   - Ik woon alleen
   - Ik woon samen met mijn partner
   - Ik woon met één of meerdere huisgenoten
   - Ik woon samen met mijn partner en kind(eren)
   - Ik woon alleen met mijn kind(eren)
   - Ik woon bij mijn ouders (familie)

7. Wat is het netto huishoudinkomen per maand?
   Nota: voor huwelijken is dit het gezamenlijk netto inkomen. Neto is wat men 'schoon' in handen heeft.
   - minder dan €1100,-- per maand
   - tussen €1100,-- en €1750,-- per maand
   - tussen €1750,-- en €3050,-- per maand
   - minder dan €3050,-- per maand
   - niet van toepassing
   - ik wees deze vraag niet te beantwoorden

8. Bent u werkzaam of werkzaam geweest in de detailhandel (retail sector)?
   - Ja
   - Nee Continue met vraag 10

9. Ik werk in de retail sector als:

10. Wat is uw culturele achtergrond?
    - Nederlands
    - Belgisch
    - Surinaams
    - Moezaans
    - Turks
    - Chinees
    - Antilleens
    - Indonesisch
    - Algerijn
    - Andere
Sectie 2

U krijgt zo meteen de eerste serie winkelcentra te zien. Na deze serie kunt u 3 vragen voorleggen.

• In welk winkelcentrum bent u het meest geneigd om niet alleen de begane grond te bezoeken, maar te bezoeken?

• Van welk winkelcentrum vindt u dat de begane grond het meest uitnodigt om de trap naar de volgen

• Van welk winkelcentrum spreekt de bovenste verdieping u het meeste aan?

Klik op onderstaande link om de filmvijf te starten.

http://schinkelsweel.net/index.html
In winkelcentra bent u het meest geneigd om niet alleen de bovenste goed te bezoeken, maar ook de onderste verdiepingen te bezoeken?

☐ A
☐ B
☐ C
3. Van welke winkelcentrum vindt u dat de begane grond het meest uitnodigt om de trap naar de volgende verdieping te nemen?

☐ A
☐ B
☐ C
3. Van welk wakkenkranz spoort de bovenste verdieping u het meeste aan?
1. De volgende vragen gaan over uw stemming

Heeft u de laatste maand een belangrijke gebeurtenis meegemaakt, positief of negatief?

☐ Nee
☐ Ja, Griefsurbrading
☐ Ja, Onvrezen
☐ Ja, Promotie
☐ Ja, Ontslag
☐ Ja, Terzuilj
☐ Ja, Andere.
☐ Aanmij

2. Wij willen nu deze vraag onderzoeken of er veel verschil is tussen mensen qua gemoeistemming. Herinner je het woordpaar. Geef voor elke paar aan wat volgens u het best van toepassing is op uw huidige stemming.

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1. Deel III: Achtergrond vragen winkelgedrag
   Ter afsluiting van de enquête zullen een aantal korte vragen gesteld worden met betrekking tot uw voorkeur welk soort winkels bezoekt u het liefst:
   (meer antwoorden mogelijk)
   □ Kleding
   □ Schoenen
   □ Huisoudstukken
   □ Speelgoed & Spel
   □ Boeken
   □ Elektronica
   □ Health & Cosmetica
   □ Juweliers & Optiek
   □ Huis & Hobby
   □ Delicatesse
   □ Muziek & Videogames
   □ Cadou
   □ Ander:

2. Welk bedrag verwacht u vandaag in het Alexandrinium te besteden?
   (in hele euro's)
   □ □ □ □ □ □ □

3. Hoe lang denkt u in het Alexandrinium te blijven?
   □ minder dan 15 minuten
   □ 15 tot 30 minuten
   □ 30 tot 60 minuten
   □ 1 tot 2 uur
   □ meer dan 2 uur

4. Bent u naar het Alexandrinium gekomen om een bepaald soort artikel of cadeau aan te schaffen?
   □ ja
   □ nee

5. Met wie bent u aan het winkelen?
   (Meer antwoorden mogelijk)
   □ Alleen
   □ Echtgenoot / Partner
   □ Vriend / Vriendin
   □ Familie
   □ Overig

6. Voor het soort boodschappen dat ik vandaag wil doen, komt ik in principe
   □ Altijd in dit winkelcentrum
   □ Soms in dit winkelcentrum
   □ Bijna nooit in dit winkelcentrum

7. Als u na het winkelen thuis komt, heeft u dan meer uitgegeven aan ongeplande dan geplande boodschappen?
   Note: 1= meer aan ongeplande boodschappen, 10= meer aan geplande boodschappen
   □ □ □ □ □ □ □ □ □ □
8. Hoe leuk vind je het algemeen het winkelen?

Voor: 1 = niet leuk, 10 = zeer leuk

Afbakening

Hartelijk dank voor de medewerking aan dit onderzoek. De gegevens zijn verwerkt. Indien u op de hoogte wint u dit straks aangeven. Ook maakt u kies op één van de 2 prijzen:
- iPod Shuffle
- Senz Storm Paraplu

1. Als u nog onoplossingen of vragen heeft, kunt u dit hieronder aangeven.

2. Wilt u op de hoogte gehouden worden van de resultaten van dit onderzoek?
   ja
   nee

3. Wilt u kans maken op één van de 2 prijzen? U kunt al uw prijs winnend kiezen uit een iPod Shuffle of een Senz paraplu.

Voor: Meen contact in te leggen via dit email adres:
   ja
   nee
APPENDIX 5: PERSONAL MOTIVATION

I have always been interested in real estate, which has begun approximately 10 years ago, when working at the real estate agency of my parents. After graduated VWO at the Nehalennia in Middelburg, I followed the education ‘Vastgoed’ at HBO, located in Kralingse Zoom, Rotterdam.

In this study I wanted to create more insight in real estate, besides being a real estate agent. My graduation lab focused on project development, in which I wanted to know, how to create a final project for a client, from scratch-on. I became familiar with the economical insight of project development but still lacked a good insight on architectural and technical level.

The current master RE&H adds to insight and during this master I gained more knowledge about concept development, from idea to final product. In retail sector I find concept development very interesting, in which consumer-environment relationship is an important aspect.

I am motivated to start this research to get more insight in the consumer-environment relationship, related to consumer behavior. I find how consumers respond on the environment in relation to the vertical circulation intriguing, and I would like to know more about it’s psychological aspect and the perception of consumers on the environment.

VISION

In the retail sector, there are a lot of challenges ahead in the future. Projects such as shopping malls do not act on their own anymore, but need a strong relation with their environment. Routing, target groups, design aspects, restrictions, plot size are all major factors that influence the individual project.

Another challenge is to distinct the project from it’s competitors, in order to attract consumers. To do so, programs need a stronger relation with the individual demand of a consumer, creating a better match between demand/supply. It is not about asking whether consumers would like to write down their demands, but to interact with the consumer-environment (interface) and to find out how they experience it. In this context, the unconscious of consumers plays a major role in the final use of the product. It is priority that future developments focus on the experience of consumers when interacting with their environment.

PROFILE

The future demands a new type of developer, in which knowledge integration is primary (indicated). To develop retail, one should not only know it’s clients wishes, but also their behavior in relation to the environment.

With this graduation project, I would like to focus on the initiative phase of concept development, in which ideas are formed into a final program. To create this final program, demand of consumers is priority. With my research, I try to focus on consumer behavior in relation to environmental psychology, not only knowing what consumers want, but how they behave. At this moment, too little attention is given to this aspect, while it does have a great impact on the final use of a product.
STUDY TARGETS
My study targets can be summarized into several important points:

- The ability to make an inspiring contribution on both practical and theoretical level in this area
- Knowledge and understanding of consumer behavior in relation to its environment.
- Knowledge and understanding of vertical circulation concepts within the retail sector
- Insight in the practice of concept development in the retail sector, especially how to implement knowledge of consumer behavior.