

60+ Stores
Free Parking
Architecture
3€ / Hour
±40 Stores
30 min
45 min
No Parking
Atmosphere
15 min



THE BEST CHOICE

Translating consumers' choices for inner city shopping centres

Master Thesis
Roemer Warners
1177028
October 2010

Real Estate & Housing
Faculty of Architecture
Delft University of Technology

Methodology

“Most consumer researches are assuming that preferences are known and stable, such studies can make strong predictions about consumer decisions without actually observing consumer behaviour. This emphasis on rationality is a natural consequence of normative theories that proffer how consumers ought to behave, as opposed to descriptive ones that emphasizes how consumers do behave.”

[Kurt A. Carlson, 2008, p2].

&

“Shopping centres are designed to make money. But shopping centres only make money if they make sense to consumers, so the design of shopping centres begins with market research- the art of finding money that’s not yet being spent.”

[James J. Farrell, 2003, p15]

Retail



THE BEST CHOICE

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Keywords

Retail, Consumers' choice, Discrete Choice Analysis,
Shopping centres, City centres, The Netherlands, Germany.

Word of thanks

A year ago I started thinking about a subject for my master thesis. Without the support of many people I would not be able to overcome this long process to finally complete this report.

At first, I would like to thank my graduation organization, Clarine van Oel as first mentor, Dion Kooijman as second mentor and Arno Ruigrok as my mentor on the job at Multi Vastgoed. Clarine was such a big help during the process. Not only did she spend a much time and effort in helping me with the research, she also kept me motivated the whole twelve months of the study. Dion was good in keeping me critical by always immediately spotting the weaknesses during the process. Arno learned me more about the retail market than I could ever learn from reading books. He and all the other colleagues of the commercial team made my time in Gouda both fun and interesting.

Thanks to Multi Vastgoed for not only letting me graduate but also taking the effort to involve me in their company.

Thanks go out to my parents, Marijn and Dorine, to whom I could always talk and argue about my graduating the past year and who helped me continuously throughout my study.

I would like to thank Berton, Ellen, Femke, Aerjen, Willem-Joost, Richard, Sander, Heino and Peter for the interviews.

Thanks to SpitS, Radio 1, Bk-Nieuws, Multi Magazine, Shopping Centre News, Stadsfeestzaal, the Munich University of Technology and the Delft University of Technology for supporting my research in The Netherlands, Germany and Belgium

And last but not least, thanks to everyone who participated with the survey.

Roemer Warners, October 2010

Executive Summary

Motive

According to Carlson [2008], the difficulty with consumer research is that most studies assume that consumer choices and preferences are known and stable. Such studies can make strong predictions about consumer decisions without actually observing consumer behaviour. This emphasis on rationality is a natural consequence of normative theories that proffer how consumers are expected to behave, as opposed to descriptive theories that emphasize how consumers actually behave. Therefore, the problem with consumer research is the discrepancy between measuring how consumers say they would behave and measuring how they do behave.

Consumer preferences are translated into consumer choices, and choices are based on a combination of both reason and emotion. Schwartz [2004] suggests that even mundane decisions are becoming increasingly complex because of the numerous available options in the current market. The same circumstances exist in the current retail industry, as shoppers are 'blinded' by many different combinations of stores, services, parking and eating possibilities. Still for retail professionals, insights in these consumer choices can be valuable, as retailers need a clear understanding of the choices customers make when deciding where to shop.

When choosing a destination for shopping, a typical consumer takes multiple aspects into account (such as the retail program, time/distance to the shopping centre, parking accessibility, catering options, etc.) in order to identify the destination that best matches the experience desired. These numerous aspects per shopping centre, in combination with the various options in the Dutch retail market, can make a simple question like 'why to choose shopping centre A over shopping centre B' hard to make, and even harder to explain. However, by understanding the consumer choices for shopping centre characteristics, retail professionals can benefit in order to build and redevelop a shopping centre preferred by consumers.

Therefore, the motive of this thesis is to determine the influence of shopping centre characteristics and consumer characteristics on the consumer's decision making strategy where to shop. In addition, this research investigates how these consumer preferences can best be measured.

To improve the insight in consumer preferences for shopping centres, a relative new research method was used. Instead of asking consumers directly for their preferences, an indirect method called discrete choice analysis (DCA) was used. In a DCA, respondents choose between two rendered images (vignettes) representing a fictional inner city shopping centre. Every vignette consists of six characteristics (main attributes); Architecture, Atmosphere, Catering, Parking, Size and Travel time.

Special attention went out to the layout of the vignettes, as there currently is no clear understanding of the influence of vignette layouts (text, images or a combination) on the choices of the respondents.

The structure of this thesis is based on three research questions about the influence of the characteristics of **shopping centres** on the choice of the **consumer**, the influence of the consumer characteristics on the choice of the consumer, and the improvement of the **research method** used to measure consumer choices.

Main Att.	Att. Level 1	Att. Level 2	Att. Level 3
Architecture	Conservative	Medium	Modern
Atmosphere	Low	Medium	High
Catering	Fast food	Coffee & tea	Restaurant
Parking	No parking	Paid parking	Free parking
Size	<20 stores	±40 stores	>60 stores
Travel time	45min by car	30min by car	15min by car

Figure 0.1: The six main attributes and their three attribute levels, used in the DCA.

Method

About 600 respondents in The Netherlands and Germany participated in a discrete choice experiment. All respondents were asked to choose between twelve sets of two vignettes, each vignette representing a fictional inner city shopping centre. Every vignette consisted of six main attributes and every main attribute was varied using three different attribute levels. To determine the six main attributes a literature study and interviews with various retail professionals were conducted. To determine choice levels, three inner city shopping centres in both The Netherlands (Entre Deux, Maastricht) and Germany (Lilien-Carré, Wiesbaden / Centrum Galerie, Dresden) were analyzed. Figure 0.1 gives an overview of all six main attributes and their three attribute levels.

To improve the knowledge about the presentation of the vignettes, the vignettes were designed in two different layouts: one layout containing symbols and the other containing text. In the ‘Symbol-layout’; Parking, Travel time, Size and Catering were displayed as full colour symbols and Architecture and Atmosphere were combined in a computer rendering. In the ‘Text-layout’, Parking, Travel time, Size and Catering were displayed in text only. Due to the difficulty of describing Architecture and Atmosphere, these two main attributes remained unchanged (Figure 0.2).

The vignettes were systematically varied to measure the consumer preferences for different characteristics of a shopping centre. In this way, each attribute level was given a certain preference (utility) by the respondents. Since there were six attributes to vary in the questionnaire, a ‘fractional factorial’ design was applied. A fractional factorial design allows all possible combinations in a highly efficient way and was generated with the statistical software program SAS. The DCA is based on efficiency in choice designs, using the multinomial logit model of Kuhfeld [2005].

In addition to the discrete choice questions, the questionnaire also asked for background information of the respondents. After a number of questions about the demographics, a second block of questions was used to determine the overall shopping preferences and behaviour of the respondent. This was done to both test whether hedonic or utilitarian shopping behaviour influenced the choices made in the discrete choice questions. To investigate whether a difference in layout interfered with the preferences of the consumers, respondents were randomly assigned into either discrete choice questions in the symbol layout, or the text layout.

The survey was conducted online in The Netherlands and Germany. Because all respondents (529 Dutch and 68 German completed surveys) had to make 12 choices between two images, 14.328 observations were used in the discrete choice analysis.

Results

The first step in analyzing the outcome of the discrete choice questions, was to see if the vignette presentation influenced the preferences of the consumers. The outcome showed that all four attributes that were displayed differently significantly affected the preference of the respondents. Based on this outcome, the hypothesis about the influence of presentation on the preferences of consumers in a discrete choice questionnaire was granted. After the survey, various respondents commented that the text in the text-vignettes was too dominant compared to the image. This resulted in the respondents basing their answers solely on the text of the four attributes, hence leaving out the attributes Architecture and Atmosphere. These comments were indeed granted by the outcome of the text vignettes. For example, Architecture did not significantly influence the choice of the respondents judging the text-vignettes, but did influence the choice of the respondents judging the symbol-vignettes. For this reason, further conclusions are completely based on the outcome of the symbol vignettes. These results are displayed in Figure 0.3.

According to respondents judging the symbol vignettes, only catering had no influence on the preferences of the respondents. In other words, the choice for a vignette was in various relative weights influenced by all attributes except for catering. Comparing the utility of individual main attributes, the most important attribute when choosing for a shopping centre is a short travel time (15 minutes by car). Secondly, the possibility to park has a large positive influence on their preference. Size is rated as the third most important attribute. Respondents valued medium size shopping centres (± 40 stores) and small shopping centres (less than 20 stores) strongly over large shopping centres (more than 60 stores). The attribute Atmosphere was ranked as fourth most important. Hereby respondents preferred high atmosphere in the form of green, lighting and decorations in the centre. The attribute Architecture was valued as fifth most important. Catering had no significant influence on the choices of the respondents. Based on the discrete choice questions of the symbol vignettes, the 'best' and 'worst' choice for an inner city shopping centre are displayed in Figure 0.4.

Main Att.		Highest Att. Level		Middle Att. Level		Lowest Att. Level	
1. Travel time	0.77	15min by car	2.15	30min by car	1.05	45min by car	set to 0
2. Parking	0.53	Free parking	1.46	Paid parking	0.57	No parking	set to 0
3. Size	0.36	40 stores	0.13	20 stores	set to 0	60 stores	-0.63
4. Atmosphere	0.12	High	0.37	Medium	-	Low	set to 0
5. Architecture	0.08	Modern	0.09	Conservative	set to 0	Medium	-
Catering	-	Restaurant	-	Coffee & tea	-	Fast food	set to 0

Figure 0.3: Utility of the main attributes and the attribute levels based on the symbol-vignettes



Figure 0.2: Example of a Text-vignette (top) and a Symbol-vignette. Both vignette show the same attribute levels.



Figure 0.4: The 'best' (top) and 'worst' choice for an inner city shopping centre based on the preferences of the consumers

In order to determine if there was an association between the demographic questions and the outcome of the discrete choice question, all interaction effects were tested in the statistical software program SAS. The outcome of this test showed that particularly age, but also income and family type affected respondents' choices. As found in literature, it was expected that gender and hedonic / utilitarian shopping behaviour would affect the choices in the DCA, however no relation was found.

Conclusions and recommendations

In the opening statement of this summary, Carlson mentioned that consumer research should focus on observed behaviour rather than on expected or normative behaviour. This thesis adds that the way preferences are assessed do make a difference as well.

Beside this new information about the effect of layout on the choices of the consumer, this research shows that the aspects, Travel time, Parking and Size remain the most influential characteristics for consumers to choose for a particular shopping centre. Atmosphere and Architecture also influence their choice but in a minor degree. Catering had no influence on the choice of the consumers.

Based on the literature study, the expert interviews and the results of the discrete choice questions the following can be recommended:

- This research shows that text is dominant over images. To give all attributes an equal weight in the vignette, future studies should not combine image and text attributes in the same vignette. As for shopping centres, atmosphere and architecture are two influential characteristics for the consumers' choice. Because these are two characteristics that are hard to grasp in text, future studies on this topic should choose an image only vignette. This recommendation is for all discrete choice studies testing non-verbal aspects.
- According to the interviews, consumers were willing to travel 45 minutes to an inner city shopping centre. Nevertheless, travel time appeared to be the most influential attribute on the consumer's choice of a certain shopping centre. Therefore, developers might have to reconsider this for determining the catchment area of a new shopping centre. Further studies can point out the exact amount of time respondents are willing to travel to a shopping centre.
- Compared to the literature study and the descriptive statistics, parking was ranked much lower compared

to how they chose in the discrete choice questions. Developers should therefore be aware of nearby parking facilities in other shopping centres as this highly influences the consumers' choice.

- Size and retail program were generally ranked as most important characteristics in the pre research. However, based on the discrete choice question this attribute was the third most influential characteristic. Besides that, consumers dislike large shopping centres. The developers' focus for an inner city shopping centre should therefore be on quality first.
- Due to the low overall score for catering, developers should be careful when planning large catering facilities (food courts) in inner city shopping centres.
- Atmosphere is difficult to fully translate in an image. Future discrete choice studies should therefore take the method a step further replacing the images by for example three-dimensional models with sound.

To conclude, as this research was conducted within the Faculty of Architecture at Delft University of Technology, it is satisfactory that one of the main conclusions, proving that text is dominant over images can be beneficial for the faculty. Architects and urban planners but also advertisers and graphical designers, who are constantly working with non-verbal aspects in presentations and researches, can use this research in order to optimize the message they try to translate.

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Chapter overview

1. The research proposal

The research proposal provides an introduction into the subject of this thesis. The subject is introduced with a relevant case in The Netherlands to initiate the problem statement. The case is the first step towards the motive of this thesis. The motive results in the problem statement, the research questions and the research deliverables. As the research method is an important subject in this thesis, the method is shortly introduced.

2. Background

Based on the three research questions determined in the first chapter. This chapter goes into every research question by using both literature and expert interviews. For example, what are the most important shopping centre characteristics? Do the consumers' demographics influence the choice for an inner city shopping centre? What are the possible difficulties when measuring consumer choices? These background studies result in a number of hypotheses that, in the end of the chapter are conceptualized in a model.

3. Research method

The aim of this chapter describe the research method used for this study, a discrete choice analysis. Based on the various possible methods, this chapter explains why this is the most sufficient method to measure consumer preferences. It later explains how the method works what can be added to improve the method for future use.

4. Main attributes

Based on the research method explained in the previous chapter, the goal of this chapter is to select the six most important characteristics (main attributes) of inner city shopping centres that influence the preferences of the consumers.

5. Attribute levels

The purpose of the previous chapter was to verify the main attributes used for the DCA. This chapter is about how to determine and design the choice levels of these attributes. The first part of the chapter is to establish the levels; the second part is about the translation of these attributes and levels into a vignette. A special attention goes out to the different vignette layouts used in this research.

6. The survey

This chapter will describe the structure of the survey based on the various hypotheses. It also goes into the approach of the respondents.

7. Results

In this chapter, the results of the Dutch and the German online surveys are discussed. Based on the various hypothesis, the chapter goes into the following subjects: the descriptive statistics of the survey, the effect of vignette layout on the preferences of the consumers, the outcome of the main attributes, the outcome of the attribute levels, the difference between direct and indirect measuring and the possible interaction effects of the consumer characteristics with the outcome of the discrete choice questions.

8. Conclusions, reflections and recommendations

This chapter starts with reflecting the various conclusions of the previous chapters, using both literature and expert interviews. The second part ends with a list of recommendations.



Vertical display window on the brick building.

DOCKERS

DOCKERS

SALE SALE SALE

EXPO

TIM

1 Research Proposal

The research proposal provides an introduction into the subject of this thesis. The subject is introduced with a relevant case in The Netherlands to initiate the problem statement. The case is the first step towards the motive of this thesis. The motive results

in the problem statement, the research questions and the research deliverables. As the research method is an important subject in this thesis, the method is shortly introduced.

Find the 10 differences



Score: 4/10 Time: 11sec. Level: 01

Figure 1.1: Find the 10 differences is a popular computer game. The goal is to find ten differences in two almost the same images. The layout is used to point out how two resembling shopping centres are completely different in terms of consumer satisfaction. The two images represent Shopping Centre Ypenburg (left) and Shopping Centre Nootdorp.

1.1 Introduction

In order to accommodate the population growth in the late 1980's, the Dutch government decided in 1991 to build new residential areas. These so-called Vinex-areas had to strengthen the existing residential market and its facilities. Beside, the Vinex-areas were designed to lower the traffic-flow and to limit unnecessary mobility. To achieve this, key areas were chosen strategically closely situated to existing city centres. These areas could thus be easily connected to existing transport infrastructure. Another important aspect was the social structure of these newly developed areas. To support diversity, the new areas were a combination of private and social housing. All areas also got assigned basic extra functions that are needed for a residential area like education and retail facilities [www.vrom.nl, March 2010].

A good example of one of these Vinex-areas is Ypenburg, situated between The Hague and Delft. A well-known Dutch urban planner, Frits Palmboom, developed the master plan for Ypenburg containing 12.000 dwellings. The residential area of Ypenburg, being closely located to the large inner city retail areas of The Hague, Delft and Rotterdam, mainly focuses on daily necessities of the Ypenburg residents. To fulfil the daily shopping needs of the new residents, two shopping centres were planned at central positions in the Ypenburg-area (Figure 1.2). The two centres, Shopping Centre Nootdorp (2003) and Shopping Centre Ypenburg (2005), are less than two kilometres apart. Both centres are easily accessible by bicycle, public transport and car.

Although Shopping Centre Nootdorp is slightly larger and has cheaper parking facilities, the target group and catchment area of both shopping centres are comparable according to their size and location. Based on these aspects, Shopping Centre Ypenburg should serve the residents on the west side of Ypenburg and Shopping Centre Nootdorp the east side. Theoretically, the centres were planned in such a way that they would have little competition from each other, as consumers mostly choose the nearest centre with sufficient shopping facilities for daily necessities [KSO 2004 (Randstad)].

However, this assumption does not hold for the current situation. When visiting the two shopping centres, the differences can be observed (Figure 1.3). The first thing that strikes the attention when visiting Shopping Centre Ypenburg, is the level of vacant stores on prime locations in the shopping centre (Figure 1.3). The second observation is the low numbers of pedestrians in the main shopping street. When arriving at Shopping Centre Nootdorp, 15 minutes later on the same day, there are no vacant stores and the shopping street is constantly crowded.

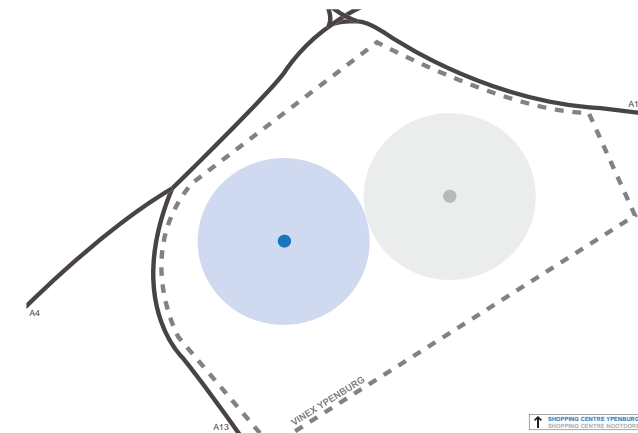
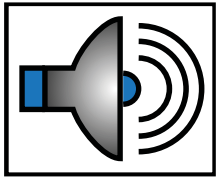


Figure 1.2: Schematic plan of the Ypenburg area, including the location of both shopping centres.

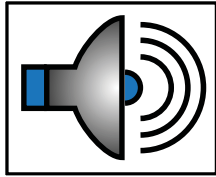


Figure 1.3: Vacant stores in Shopping Centre Ypenburg

SOUND BUTTON



SOUND BUTTON



Audio 1.0: Consumers interviewed in Shopping Centre Ypenburg (left button) and Shopping Centre Nootdorp.

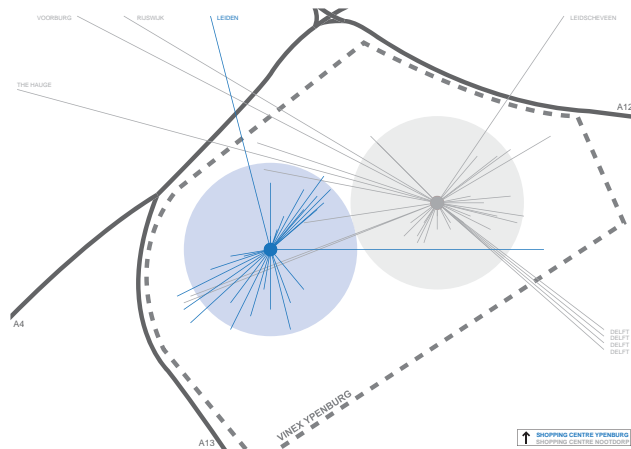


Figure 1.4: Outcome question 1

What could be the reason for the diversity in success of the two centres? Do most consumers prefer Shopping Centre Nootdorp over Shopping Centre Ypenburg, and if they do what is their reason? These unanswered questions were the first steps towards this research project. In order to test the consumer satisfaction and the level of competition between the two shopping centres, a pilot case was conducted.

1.1.1 Case: Shopping Centre Ypenburg vs. Shopping Centre Nootdorp

	Shopping Centre Ypenburg	Shopping Centre Nootdorp
Date & Time	17-03-2010 13:06	17-03-2010 14:44
Weather	Dry and cloudy (8 C)	Dry and cloudy (8 C)
Number of shoppers	30 (23 female / 7 male)	40 (31 female / 9 male)
Number of stores and m2	58*	68*
Open since	2005	2003
Architect	Rapp + Rapp	Soeters Van Eldonk
Developer	Forum invest	ING real estate

*www.locatusonline.nl March 2010.

The fastest way to find out what drove the consumers to visit in either Shopping Centre Ypenburg or Shopping Centre Nootdorp was to ask them directly. On an average Wednesday afternoon in March, 30 shoppers in Shopping Centre Ypenburg and 40 shoppers in Shopping Centre Nootdorp were asked the following two short questions:

1. What is the postal code of your home address? (1111 AA)
2. Are you overall satisfied with this shopping centre (Audio 1.0)? (Yes / No)

These questions were easy to answer and should give a good first indication about the travelled distance, as calculated with their postal code, to the centre compared to the other centre (question 1) and whether consumers were generally satisfied with the centre (question 2).

The outcomes of the case are graphically shown in Figure 1.4 and 1.5.

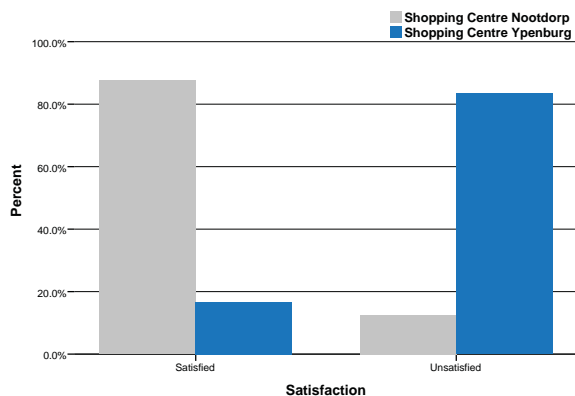


Figure 1.5: Outcome question 2.

The outcome of the first questions, displayed in Figure 1.4, shows that a number of consumers prefer Shopping Centre Nootdorp over Shopping Centre Ypenburg even when they live closer to Ypenburg. An explanation for this might be found in the data gained by the second questions. A majority of 87% of the shoppers in Shopping Centre Nootdorp are satisfied with the centre, compared to a minority of 17% in Shopping Centre Ypenburg.

Based on these facts and despite the resemblance between the two shopping centres in terms of location, time of existence, number and type of stores, catchment area and accessibility, the attractiveness of Shopping Centre Nootdorp seems to be outperforming Ypenburg according to consumers.

After the performance of this pilot-research, some new questions came to mind. What is the reason for the perceived difference in satisfaction and success between the two shopping centres? Are the few extra stores or the slightly cheaper parking facilities in Shopping Centre Nootdorp the key to its attractiveness, or are there perhaps other aspects that influence the consumers' satisfaction?

“Shopping centres are designed to make money. But shopping centres only make money if they make sense to consumers, so the development of shopping centres begins with market research- the art of finding money that's not yet being spent”. With these words, James J. Farrell concludes the first chapter of his book *One Nation under Goods. Insight in consumers' preferences can be the key to a successful retail project* [Verma, 2007]. “It is of great importance for a retail designer and developer to understand the motivations, preferences and behaviour of the consumers. Architect often fail when they mistake their own vision for the vision of the future consumers” [Interview 5, De Vries]. Van Oss confirms this by saying: “Insight in consumers; what they search for, where they walk, where they spend their money on and what they aspect of a shopping centre is essential information for a developer in order to develop a successful retail project” [Interview 7, Van Oss].

By understanding consumer choices developers can develop and position shopping centres to more effectively satisfy their consumers' needs. Insight in the preferences and choices of the consumers can therefore be the key to success for a shopping centre. The MOTIVE essence of this master thesis is about improving the understanding of consumer choices towards shopping centres, located in city centres, in The Netherlands (and Germany).

The issue of this thesis is not in particular about the case examples of Ypenburg and Nootdorp. It is about how consumers' preferences and choices can be monitored in a way that retail professionals can benefit from this knowledge.

This thesis will mainly focus on the Dutch retail market and will be conducted during an internship at one of the largest Dutch retail developers, Multi Development. Because the majority of the retail facilities in The Netherlands are found in city centres and alongside the fact that Multi is specialized in developing inner city shopping centres,

“In mature retail markets, the city centre is the most imperative retail area” Femke Wokke



Figuur 5.3.1: Keuzeset 1 uit blok 1 van het locatieprofiel 'Binnenstad'



Figuur 1 – Voorbeeld vignet uit de kwantitatieve respondentenenquête

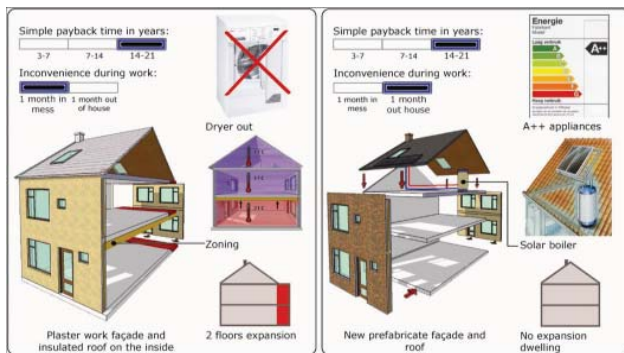


Figure 5: Set of vignettes as presented in the online questionnaire

Figure 1.6: Snoei 2008 (top), Van den Berkhof 2008 (middle), Bogerd 2009

the main focus of this study will be on shopping centres located in a city centre. To improve the readability of the report, inner city shopping centres will in further chapters be referred to as 'shopping centres'. A shopping centre is in this case a retail centre that is developed at once, with a minimum user area of 2.500 m² and a minimum of three independent stores (Dutch Council of Shopping Centres).

Although designing according to consumer preferences might sound logical, the case in Nootdorp and Ypenburg showed that there are still centres that fail to deliver these preferences. In the case of Shopping Centre Ypenburg this resulted in vacancy. A scenario unwanted by all involved actors of a shopping centre: investor, developer, architect, retailer and consumer.

The problem of translating consumer preferences into a design has to do with the fact that preferences can be dynamic, unclear and more complex than one might think. Preferences are translated in choices and choices are based on a combination of both reason and emotion. Therefore, for consumers, even simple question can be hard to make and even harder to explain. Schwartz [2004] suggests that even mundane decisions, like buying a pair of jeans, is becoming increasingly complex because of the numerous choices (available) in the current market. The same scenario exists in the current retail industry, as shoppers are 'blinded' with many different combinations of stores, services, parking and eating possibilities [Hanlon, 2009].

Therefore, consumer researches which assume that preferences are known and stable can lead wrong assumptions [Carlson, 2008]. These studies can make strong predictions about consumer decisions without actually observing consumer behaviour. This emphasis on rationality is a natural consequence of normative theories that proffer how consumers are expected to behave, as opposed to descriptive theories that emphasize how consumers actually behave. Consequently, the problem with consumer research is the discrepancy between measuring how consumers say they would behave and measuring how they do behave.

Asking consumers directly to their preference is according to Carlson not sufficient to measure real life behaviour. To successfully measure real choices a Discrete Choice Analysis (DCA) will be used. In a discrete choice experiment, respondent are asked to repeatedly choose between two options. These options are called vignettes and can be displayed in text, images or a combination of both. Previous DCA studies towards consumer choices have used different methods of displaying information to their respondents. For example, Snoei [2008] used text dominated images as vignettes, Van den Berkhof [2008] chose for an image with no text and Bogerd [2009] worked with combination of images and text (Figure 1.6). According to Jansen [2009] and Van Oel, there is still limited knowledge on the effect of vignette presentation on the choices of the respondents. Yet, this information can be valuable for future DCA studies. The second purpose of this research is to investigate the effect of vignette layout on the preferences of the respondents. More about the research method used can be read in the following two chapters.

To conclude, gaining insight in the consumers' choices is important for the success of an inner city shopping centre. Yet, in the practice, consumers' preferences/choices are often complex and therefore difficult to measure correctly. Improving the knowledge about consumer preference and improving the research method for measure these preferences can be of future benefit for retail professionals.

1.2 Research deliverables

The motive of this thesis is to determine the influence of shopping centre characteristics and consumer characteristics on the consumer's decision making strategy where to shop. In addition, this research investigates how the research method used (DCA) can be improved. These insights can eventually be used by retail professionals, investors, architects and future users of a DCA.

The main targets of the research are:

- To gain insight in the consumers' choices for an inner city shopping centre.
- To advise about the shopping centre characteristics, in order to improve the overall experience of the consumers within inner city shopping centres.
- To improve the knowledge about the research method used.

1.3 Research questions

In the introduction, three important topics were revealed, product, consumer and research method. The research questions and the structure of the thesis will be based on these three topics. This leads to the following three research questions:

- **Product:** What shopping centre characteristics influence the choice of the consumers and to what extent do these characteristics influence this choice?
- **Consumer:** What consumer characteristics influence the choice of the consumers and to what extent do these characteristics influence this choice?
- **Method:** When using a discrete choice analysis, what is the best way to measure a combination of verbal and non-verbal aspects in the same vignette?

In order to answer these research questions, the following sub questions will be addressed:

Product:

- What is an inner city shopping centre?
- What are important inner city shopping centre characteristics that influence the choice of consumers?

Consumer:

- What demographical characteristics of the consumers influence their choice for an inner city shopping centre?
- What influence do the shopping preferences and the shopping behaviour of the consumers have on their choice for an inner city shopping centre?

Method

- Why is a discrete choice analysis the best-suited methodological method to study consumer preferences?
- Would it make a difference in the preference of the respondents whether the characteristics of interest are visualized instead of described?



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2 Background

Based on the three research questions determined in the first chapter. This chapter goes into every research question by using both literature and expert interviews. For example, what are the most important shopping centre characteristics? Do the consumers' demographics influence the choice for

an inner city shopping centre? What are the possible difficulties when measuring consumer choices? These background studies result in a number of hypotheses that, in the end of the chapter are conceptualized in a model.

2.1 Consumer

2.1.1 Consumer demographics

H1: Consumer characteristics influence the consumer's choice for a shopping centre.

The first sections of this chapter is about consumers' characteristics and their possible influence on their choices for a shopping centre.

Wesley et al. [2006] shows that both gender and income have influence on the on the spending pattern of the consumer. Wesley et al. supports the view that gender, age, and income influence the consumers' choices. This vision is based on a combinations of his own findings and findings from prior research that support the view that gender, age, and income influence the consumers choice. For example, consumers 18- to 24-years-old are "more likely than other consumers to buy a product on the spur of the moment and change brands if the mood strikes" [Weiss, 2003, p31], whereas consumers 27- to 39-years old are "looking for products that seem less mass-marketed and more retro, while also being affordable" [p37]. Malhotra [2004] explains that demographic characteristics have been found to be useful to help explain consumers' decisions. Van den Berkhof [2008] showed in that demographical aspects influence the preference of the consumers. In his survey, van Berkhof asked the respondent (travellers of Schiphol Airport) about their gender, age, education, nationality, income, motive of flying and their stage in the journey. Although the research did not go in to these characteristics completely, enough could be said that for example European travellers made different choices compared to travellers from outside Europe. Koeneman jokes in his interview about the difference in age and gender by saying that the groups that mostly need to be entertained in a shopping centre are men and children [Interview 4, Koeneman].

For this research, the focus is on inner city shopping centres. Because city centres are beside highways the best used public spaces, the variety of consumers is endless. When asked about the consumers of a city centre, Reulink explains that there is no particular 'consumer' in a city centre. This is based on his opinion that consumers have become more individual. This does not mean that there are no target groups any more but in the last decades the groups have become smaller and more numerous. In the current retail market there are so many small 'target groups' that this has resulted in a grey mass [Interview 6, Reulink]. Architect De Vries says: "Everyone is our target group. Therefore the target group does not exist" [Interview 5, De Vries].

To conclude, according to previous studies and expert opinions consumers' characteristics do influence the

choices and preferences of the consumers. Nevertheless, in city centres there are no particular target or consumers groups. Therefore, a wide range of consumer demographic will be tested to see whether and how they influence the consumers' choices. The survey will test the following aspects: Gender, Age, Income, Cultural background, Nationality, Home situation and Main daily activity. More information about these questions can be read in chapter 6.

2.1.2 Consumer purpose

H2 : Shopping purpose influences the consumer's choice for a shopping centre.

Before focusing on a type of retailing it might be interesting to include the consumers' orientation toward shopping. This, to see whether there is a connection between the type of retailing and the consumers' purpose. Customers orientations toward shopping vary along a continuum from efficiency-oriented to recreation-oriented. By presenting two extremes of goal specificity and goal ambiguity [Kaltcheva and Weitz, 2006] corresponding, respectively, to situations of efficient vs. inefficient shopping. This research assumes that different motives influence the preferences of the consumer. Consumers with a specific (ambiguous) goal approach store selection and shopping from the perspective of efficiency (recreation) [Massara et al., 2009].

According to Puccinelli et al. [2009] goals and atmosphere are two important aspects that influence the consumer. For example, consumer goals play an important role in determining how consumers perceive the retail environment. Goals such as entertainment, recreation, social interaction, and intellectual stimulation also affect the consumer decision process [Arnold and Reynolds, 2003]. Therefore, goals help consumers make their shopping decisions, and a better understanding of consumer goals and related stored information in turn would help retailers develop innovative retail formats. One of the earliest efforts to identify and classify the reasons people shop Tauber [1972] suggests that personal and social needs motivate shopping, beyond the simple need to acquire some product. "I am not driving an hour to buy in shopping centre, but to be in a shopping centre" [Interview 1, De Bont].

Consumers shop for various reasons, which may not include a specific need for a product or service; for example, they may need entertainment, recreation, social interaction, or intellectual stimulation [Arnold and Reynolds, 2003]. The same retail environment may produce very different outcomes and feelings, depending on the consumers' goals. For example, a crowded retail establishment may be exciting and stimulating for a consumer seeking entertainment but create a perception of poor service and frustration for a consumer who wants to purchase a specific product to meet an immediate need. More generally, task-oriented shoppers evaluate the stimuli restraining or blocking goal-directed activities negatively, whereas non-task-oriented shoppers evaluate these same stimuli positively [Eroglu and Harrel, 1986].

Based on these difference in shopping goals two consumer groups can be generated:

- Utilitarian shopper: Efficiency-oriented consumers, also referred to as run shoppers or utilitarian shopping behaviour
- Hedonic shopper: Recreation-oriented consumers, also referred to as fun shoppers or hedonic shopping behaviour

According to the literature shopping purpose can affect the preferences and choices of the consumers and is therefore part of this study.

Hedonic shopping behaviour (fun shopping)

According to the dictionary hedonic means: characterizing, or pertaining to pleasure. The origin of the word comes from the Greek word hēdonikós what literally means pleasurable [www.dictionary.reference.com].

The time that shopping centres were just a number of stores within four walls and a roof is outdated. Modern shopping centres are often impressive buildings offering the consumer a wide range of both shopping, relaxing and recreation. Shopping itself has become a form of recreation for a large number of consumers, consumers that shop because they want not because they must.

Hedonic shopping value can be related to the consumer's need to obtain fun and pleasure and relates to the perceived level of shopping enjoyment. Beatty and Ferrell [1998] define shopping enjoyment as the pleasure obtained from the shopping process, which often transcends product purchase.

Utilitarian shopping behaviour (run shopping)

According to the dictionary utilitarian means: having regard to utility or usefulness rather than beauty, ornamentation, etc. [www.dictionary.reference.com].

Within a retail context, utilitarian shopping value can be related to the consumers' need to obtain some utilitarian of functional consequences from visiting a store, for example in terms of competitive price, time and effort expenditure reduction, or risk reduction [Sands et al., 2009]. There are a variety of utilitarian attributes that are salient in consumer discrimination between retail locations, these include: price level, range of goods, distance from home to store, customer service levels, and accessibility [Oppewal and Koelemeijer, 2005].

Including shopping purpose in the survey

Based on the literature quoted in the pervious section of this paragraph, the following table was made summarising general hedonic and utilitarian shopping behaviour aspects.

Hedonic shopping (fun-shopping)	Utilitarian shopping (run-shopping)
Spontaneous	Necessary
Emotion	Frequent
Semi-frequent	Efficient
Ambiance	Comfort
Large choice	Price conscious
Price conscious	Routine
Enjoys shopping (at the moment)	Dislikes shopping (at the moment)
City centre / Shopping centre (location)	Residential environment (location)

Figure 2.1: The table gives an overview of the characteristics of hedonic and utilitarian consumers [Ruigrok, 2009].

Most researches described in this paragraph were conducted in shopping centres. Consumers were asked directly about there purpose of shopping. Due to time and quantity this research will be conducted online. One of the problems measuring consumers' purpose is the fact that it is difficult to measure whether someone is a hedonic of a utilitarian shopper in an online survey. In comparison to solid characteristics like race and gender, the problem measuring purpose is the fact that this differences varies per consumers from time to time.

For example, a consumer just got her first salary and likes to celebrate this by buying something nice for herself. She is excited and looks forward to go for shopping. Because of this mood, she is likely to spend more time (and therefore more money). This is a perfect example of fun shopping. However, although this describes the stereotype fun shopper, it is not possible to label this particular consumer as a fun shopper because the situation is just a instantaneous sample. You might find that when for example, time is limited or she does not feel well, this same consumer dislikes shopping and her goal becomes more utilitarian, highly focused on time and efficiency.

Survey questions	Run shopper	Fun shopper
1. First time here:	no	no
2. I find shopping:	nice or important	nice
3. I shop only to:	do groceries	look around and relax
4. When I shop time plays:	an important role	no important role
5. When I shop I visit:	often or sometimes	sometimes or rarely
6. When I have shopped, I remember:	often	often or sometimes
7. I come:	sometimes or rarely	often or sometimes
8. After I buy something:	positive or not	positive
9. I make combination visits:	yes or no	yes
10. Proposition 1:	disagree	agree or disagree
Proposition 2:	agree	agree or disagree
11. Reason of visit:	doing groceries	looking around and relaxing
12: How often do you come here:	1 or 2 times a week	1 or 2 times a week
13: What do you find attractive:	accessibility	retail-supply
14: Did you buy something today:	yes or going to	yes or no
15: Draw last 30 min.:	yes	yes
16: Draw next 60 min.:	yes	yes
17. till 20.:	depends on individual	depends on individual

Figure 2.2: Survey questions to separate hedonic (fun) and utilitarian (run) shoppers [Spiessens 2010]

Spiessens [2010], studying consumers' purpose for retail and leisure in the city centre of Rotterdam, used the model display in Figure 2.2 to separate hedonic from utilitarian consumers. In his interviews, he used two propositions about the consumers' attitude towards shopping. The first proposition is about whether shopping is a form of recreation or rather a necessity to purchase an item. The second proposition determines in what way consumers plan their shopping. Partly based on this research, the idea for measuring shopping purpose in this online questionnaire is based on the following two assumptions:

1. Consumers who generally enjoy shopping are more often fun shopping than people who dislike shopping.
2. Consumers that are more of the fun shopping are less target minded when shopping and vice versa.

These two assumptions will be tested in the survey due to the following four questions:

1. What is your general opinion about shopping?
2. 'I see shopping as recreation / I see shopping as a necessity'
3. 'When I go shopping I often buy something unplanned'
4. 'I always plan my shopping at forehand / I never plan my shopping at forehand'

The purpose of these four questions is to determine whether a respondent is more likely to be a hedonic or a utilitarian shopper.

Online survey

An advantage for generating honest opinions about shopping is that the questionnaire is conducted online. For an online survey, the respondent needs to have access to a computer with an internet connection. Therefore, the respondents are often at home or at work when conducting the survey. In other words, while answering the questions they are unlikely to be shopping. This matters in a way that respondents are not influenced by a direct shopping environment or experience.

A disadvantage could be that respondents are only hedonic or utilitarian when they are shopping.

2.2 Product

H3: Shopping centre characteristics influence the consumer's choice for a shopping centre

This section is about the product. In this thesis, the product is a shopping centre located in a city centre. What exactly is an inner city shopping centre and what are important inner city shopping centre characteristics that could influence the consumers' choices?

Kooijman [1999] divides six different retail types: the passage, the department store, the supermarket, the shopping centre, the retail park and the online store. These types are characterized by type of building, design and the relation with the environment. For example, a characterizing element of the department store is the separation of products. Supermarkets are known for their self-service and their high focus on efficiency.

Another aspect influencing the type of retail is the spatial relation between building and consumer. Kooijman uses two concepts for the environmental role of the building: machine and theatre. In this comparison, the machine is the image that relates to the efficiency of utilitarian shopping, also known as run-shopping. Most supermarkets are good examples of this category. The theatre stands for recreation, relaxing and the pleasure of hedonic shopping, also known as fun-shopping. The department store belongs to this category.

As described in the first chapter the focus of this research is on shopping centres (a retail centre that is developed at once, with a minimum user area of 2.500 m² and a minimum of three independent stores') located in the city centre (this was done due to the Dutch retail market and the experience on this type of retail by the graduating company).

For utilitarian retail types like supermarkets and retail areas efficiency and quantity are essential aspects. These types desire large stores in terms of square floor meters with sufficient parking facilities. In city centres, the available space are often to limited and the rent prices to expensive to fulfil the needs of proper utilitarian retail types [Interview 7, Van Oss]. The focus of inner city shopping centres are therefore often more hedonic than utilitarian. This research will therefore try to measure whether this influences the choice of the consumers.

The second part of this paragraph is to go into the characteristics of an inner city shopping centre. To determine this, a number of previous studies on this topic will be discussed.

Various aspects within a shopping centre influence the consumers' choice.

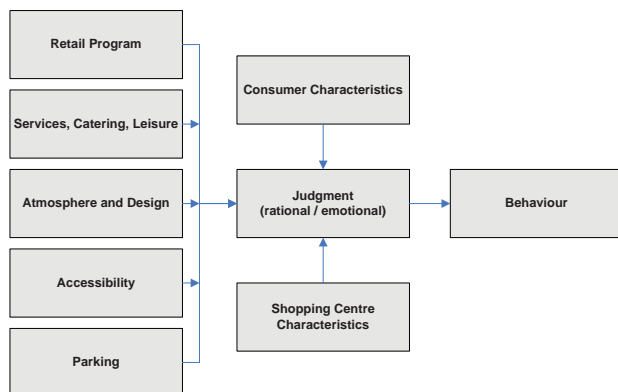


Figure 2.3: The model of Gianotten [Gianotten, 2008, p22]. Gianotten also included consumer characteristics and type of retail in the research.

Acting upon instructions from the SSM (Stichting Studiecentrum Marktontwikkeling) Retail Platform and Panteia, Gianotten conducted a research toward a number of topics in the Dutch retail market. The research was supervised by H. Gianotten and executed by View/Ture (Maurice de Hond). The goal of the research was to measure the overall consumer preferences for shopping; the role of the online retail and the role of supermarkets. The fact that that almost the same research was conducted 2003 and 2008, made it interesting to summarize the change in consumers' answers in these five years time. For the research, Gianotten used a direct rating based internet survey on 543 respondents in 2003 and 709 in 2008. Respondents had to rate 34 possible shopping centre aspects based on their own preferences. In the model of Gianotten (Figure 2.3), the 34 aspects are clustered into five groups. These groups are according to Gianotten:

- Retail program: range, quality, price and service
- Service and Leisure: catering, banks, sport & recreation, entertainment, etc.
- Ambiance: design, atmosphere, cleanness, safety, etc.
- Accessibility: closeness, orientation, reachable
- Parking: availability, costs

Compared to the research conducted in 2003 the most considerable changes with the research of 2008 are the fact that the complete retail program, the quality of the stores and a shorter distance to the consumers' house became more important while parking, cost and availability had lost importance for consumers. Number one remains in 2008 and 2003 the accessibility of the retail area. Another conclusion that can be drawn from both researches is that there was and still is little demand for leisure (and sports).

According to Bolt [1995] and Koeneman [Interview 4, Koeneman], consumers are looking for a balance of stores that are reliable and safe and stores that are exciting and new.

According to Bolt the presentation of the centre is the most import characteristic. The preference of the consumer to be able to compare product results in clustering. This clustering is one of the main motivations for a consumer to visit a city centre or a shopping centre. During the research, Bolt interviewed 1100 retail experts during a congress in Helsinki, based on the retrieved information Bolt made a list of success factors for shopping centres. Notice that again, the experts were asked for their opinion, not the consumers. The most important aspects were, location, parking and retail program. Design was according to the experts relative unimportant for a shopping centre.

Like Bolt, Schoot [1998] interviewed retail experts to determine the success factors for a shopping centre. Schoot concluded that the catchment area, location, retail program and accessibility were the essential aspect for a successful shopping centre. Next in line were aspect like, design and service.

Reilly gave a correlation between the accessibility (the location in combination with the residents of the consumer) and the size of the centre (amount of stores and the store sizes) according to Reilly these were the two aspects that would attract the consumer.

Oppewal [1995] also found that atmosphere and physical layout were alongside accessibility and size (program) essential aspects for consumers' choice of a shopping centre. Architecture and interior design were methods to improve the environmental experience of the consumer in order to stimulate the buying behaviour. Kent [2003] mentioned that the right design is a key factor for the success of the shopping centre: "Design is a means of communicating a message to people. It should add value to retail strategy by improving the quality of the shopping environment and by influencing consumers' decisions making and loyalty" [Kent, 2003].

However, to put in perspective that design was not the only attribute for the success of a shopping centre Bodegraven [2004] gave a number of examples where award-winning designs of the International Council for Shopping Centres (ICSC) did not lead to commercial successes. A lack of insight in behaviour and preferences of the consumer was often one of the mistakes made [Bolt, 1995]. Bodegraven based his master thesis, mainly on literature about consumer preferences for shopping centres. In his conclusion, Bodegraven wrote that retail program and accessibility were the two most important characteristics followed by parking, atmosphere and design.

The difficulty now, is to compare the various researches towards shopping centres. The problem is that different sources indicate different aspects. Different aspects are, operated, named and dimensioned differently as well. Therefore, a long list of all the most frequently named characteristics in the literature, will be used in the expert interviews (chapter 4). To conclude, the following long list of inner city shopping centre characteristics is made:

1. Accessibility (how easy is it to reach the centre)
2. Parking
3. Retail program
4. Size of the centre
5. Travel time (to the centre)
6. Atmosphere
7. Location
8. Design (Architecture)
9. Catering
10. Leisure
11. Service

"Developing retail in city centres is more than just retail. It is about adding something to an already existing structure. City centres are a juncture of function with a unique atmosphere and attraction. As a designer one should read these features and use them to improve your design" Peter Trimp, partner architect T+T Design

*"It are often the soft and subconscious aspects that make a design a good design"
Berton de Bont, architect T+T Design*

"The attraction of the city centre is always stronger than the attraction of the shopping centre" Van Oss

2.3 Method

Making choices: Why choices are often complex to make, tough to explain and hard to measure

www.dictionary.com:

A choice: an act or instance of choosing; selection

To choose: to select from a number of possibilities; pick by preference

Before it is possible to choose a sufficient methodology to measure choices (research question 3) it is important to explain more this central definition of the first chapter. Why is it important to understand consumers' choices? Why are choices often more complex than is thought? Where are choices based on? What is important when measuring choices?

2.3.1 The importance of understanding choices

The key to a successful (retail) project is to understand the preferences of the consumer (chapter 1)

Why is it for developers and designers important to understand consumers' choices? The essence of this is because measuring consumer choices is a major part of developing new products and determining the success of existing products. Market researchers often measure choices for colours, brands, flavours and the importance of certain product features in order to make recommendations about marketing strategy and product design [Cohen & Orme, 2004]. The process of new product design for example combines many viewpoints including marketing, manufacturing, engineering, and human factors perspectives. In marketing, consumer choice research is used to determine and focus on product features that will persuade a consumer to choose one product over another [Tarasewich, 1996]. Therefore, incorporating consumer preferences and choices into day-to-day managerial decisions is extremely important for highly competitive services industries such as hotels, health care, and retail, because their consumers evaluate them on more than one criterion. For example, consumers might choose fast-food establishments based on their cost, service quality, food quality, food variety, or speed of delivery. Similarly, consumers might choose a hotel based on its location, brand name, facilities, service quality, price, and loyalty program, among other things [Verma, 2008]. The proper feature mix is perhaps the most critical factor that determines whether or not the centre, and in turn the stores within the centre, thrives or fails [Tarasewich, 1996].

Shopping centres try to sell as many products as possible. To accomplish this they should be designed in an effort to fulfil the needs or desires of a population. In other words, a shopping centre will not be successful if it does not

meet the needs and preferences of its users, just as a new product will fail in the marketplace if consumers do not respond well to it. Like in new product development, many issues are important when developing and designing a shopping centre. Aspects like accessibility, routing, program, parking and design all influence the preferences of the consumers and therefore the success of a project.

2.3.2 Why is choosing complex?

'Choosing well is difficult because most decisions have several different dimensions' [Schwartz, 2004, p50]

'Happiness is in your choice'

To demonstrate how hard everyday choices can be to make and to explain this paragraph is an anecdote of me buying a cup of coffee on the central station of Amsterdam.

A famous American coffee franchise just opened one of their first stores in the Netherlands at the Central Railway Station in Amsterdam. Having heard and seen so many things about this 'brand', I was more than curious to buy a cup of coffee in this store, known so well from movies and television. After waiting for more than 15 minutes, it was finally my turn to order. Although 15 minutes is normally more than enough time to decide what coffee to order, this time I still had no idea what to choose. The possibilities were endless, as there were 21 different type of frappucino, 7 types of brewed coffee, 27 types of espresso, 24 types of tea and on top of that a large variety of soft drinks, hot chocolates and smoothies (see Figure 2.4). Finally, I settled for an 'Orange-mocha-frappucino', (a coffee that looked like and probably cost more than an exotic cocktail in a fancy bar).

This frappucino turned out just fine, but that day (of then) it occurred to me that buying a cup of coffee should not be an hour-long project. By creating all these options, the store undoubtedly had done a favour for consumers with varied tastes. However, by vastly expanding the range of choices, they had also created a new problem that needed to be solved. Before these options were available, a buyer like me had to settle for either coffee, coffee with milk, espresso, cappuccino or tea. The choice was limited, but at least buying coffee was a one-minute affair. Now it was a complex decision in which I was forced to invest time and energy.

Walking to my train, I started wondering how I ended up with this fancy frappucino. Off course the decision was entirely made by me, but why? When probed to explain, why this one and not one of the 99 other options, I would likely find myself troubled. Normally when buying coffee in a train station, my decision would be based on 1. time, 2. price and 3. brand. However, this situation was different, price and time obviously played only a moderate role in the decision-making. So where did I base my choice on this time? Knowing, the choice of the store was based on a combination of curiosity, brand and experience but why this particular coffee? Did I choose on flavor,



Figure 2.4: Overview of the Starbucks' beverage menu (www.starbucks.com).

looks or experience? Was I influenced by an advertisement? Did I care about the image it would give me to others while drinking this coffee? Moreover, was it a combination of aspects and if so, was each of these aspects equally influencing my choice? Where there perhaps other motivators that influenced my choice without me being aware of this? Was my choice random or well thought through?

Off course, some choices are easy to explain. For example, if I am going to play soccer I would like to bring my soccer shoes with me. Most choices, however, will likely be introspectively almost blank:

“Frappuccino? Well, I really felt like frappuccino, I guess.”

The personal example given in this paragraph outlines two facets about choices. First, that even moderate, every day decisions can be made complex due to the large number of options to choose from. Second, the features that influence a choice are often unclear, making choices sometimes hard to explain to oneself and others.

2.3.3 Where do we base choice on?

According to Schwartz [2004, p52], most good decisions will involve the following six steps:

1. Figure out your goal or goals.
2. Evaluate the importance of each goal.
3. Array the options.
4. Evaluate how likely each of the options is to meet your goals.
5. Pick the winning option.
6. Later use the consequences of your choice to modify your goals, the importance you assign them, and the way you evaluate future possibilities.

For example, when deciding to go shopping you first Figure out the main purpose. Normally this would be to buy something you need or want. For some people, it might be just for recreation, to meet friends or to have a drink. For this example, imagine that you like to buy new sunglasses, some weekly groceries and a present for your cousin that has his birthday in two weeks (step 1).

Now you evaluate the importance of each goal. You decide that the sunglasses are the main goal of your visit to the shopping centre. The groceries are important as well, but the present could be also bought next weekend (step 2 and 3).

After you have decided sunglasses will be the main goal of the shopping trip, you start asking yourself what kind of sunglasses you like of need. Based on your options to choose from, you start evaluating every shopping centre or shopping area based on how they meet your goals (step 4). For instance, because your main goal is to buy an expensive pair of sunglasses you might be willing to travel longer. In this case, the retail program is becoming more important than the travel time. For cheaper sunglasses, you might find that these preferences are different.

After evaluating your options in the previous step, you might finally settle for shopping centre 'X', because this option has the right store for sunglasses, a supermarket and a gift shop. It is quite far from your home but it has excellent parking facilities. They have a nice coffee shop (step 5).

Subsequent to your shopping trip, you remember how good or bad your choice was and use this memory for the next time you have to choose a shopping centre ("the last time you went there, it was a success as well") (step 6).

Step 6 is important but often overlooked. For example, after visiting Shopping Centre B, you might discover that the travel time to the centre turned out to be more important, and the optician less important than you originally thought while making the choice for this centre. Next time, you will differently weight these factors.

Even with a limited number of options, going through this process can be hard work. As the number of options increases, the effort required to make a good decision increases as well, which is one of the reasons that choice can be transformed from a blessing into a burden. It is also one of the reasons that people do not always manage the decision-making task effectively and we therefore sometimes measure the wrong preferences and behaviours [Carlson 2008].

Explanation of consumer behaviour is casted in terms that are rooted in cognitive psychology (Bargh, 2002). Before people buy, or choose, or decide, they engage in more or less elaborate, conscious information processing (Petty, Cacioppo & Schumann 1983).

The amount of information that is processed is dependent on various aspects, including shopping centre characteristics as well as consumer characteristics (e.g., Fazio, 1990; Krugman, 1965). Information processing may lead to certain attitudes, and these attitudes, in turn, may or may not affect decisions. Attitudes can be based more on cognitive beliefs, such as when one finds a product very useful, or more on affect, such as when a product has important symbolic meanings (Baaren, 2005).



As mentioned at the start of this paragraph, the process of decision making begins with the question: “What do I want?” At first glance, this looks as a question that should be easy to answer. Notwithstanding the wealth of information in the current retail market, the question “What do I want?” is largely addressed by consumers through internal dialogue. However, knowing what one prefers means, in essence, being able to anticipate accurately how one choice or another will make one feels, and that is no simple task. Whenever you eat a meal in a restaurant, listen to a track, or go to a movie, you either like the experience or you do not. The way the meal, the music or the movie makes you feel that very moment, either good or bad, is referred to as experienced utility [Schwartz 2004]. Utility expresses someone satisfaction or valuation with a product, Before you actually have the experience, you have to choose it. You have to pick a bar, a concert or a shopping centre, and you make these choices based upon how you expect the experiences to make you feel. So choices are based upon so called expected utility [Schwarz 2004]. And once you have had experience with a particular bar, concert, or shopping centre, future choices will be based upon what you remember about these past experiences. This is called the remembered utility [Schwarz 2004].

In order to equally monitor the preferences of the consumers it is important to filter out the experienced and expected utilities. Not because this is not interesting to examine, but rather because this will blur the answers given by the respondents. Bad experiences in the past will make it hard for consumers to give their honest opinion for the characteristics of a shopping centre. Example, if you have had a very bad day, you decide to buy something you have wanted desperately for some time (expected utility). Arriving at the shopping centre, you will find that the item is sold out and therefore you decide that this is the worst shopping centre you have ever been to (experienced utility). Next time you have to buy something again, you would probably prefer another shopping centre (remembered utility). Does the missing item really make this the worst shopping centre you have ever been to or is this opinion probably based on you bad general mood of a day in the past?

Unconscious decision making

“For shoppers it is often unclear what they really want. When asked directly, they value service in a shopping centre high but fail to show this preference in real life. For experience, it is exactly the other way around. This difference in what people say they want and how they act in real life is a major problem in most consumer researches” [Interview 4, Koeneman]

People often choose unconsciously or at least almost unconsciously [Smith, 2005]. According to Smith, the majority of the items you buy in a visit to the supermarket were chosen after nothing more than a fleeting moment of awareness (“Ah yes, apples”). During the 20 minutes you spent in the supermarket, your consciousness was

mostly occupied with things other than groceries. You thought about the coming exam, about the weird noise your car made while driving to the supermarket, or perhaps about whether or not Holland would have a chance in the coming world cup.

The fact that it was hard for me to explain how I ended up with my frappuccino might have to do with the fact that consumer behaviour is often strongly influenced by subtle environmental cues [Dijksterhuis et al., 2005]. Traditionally, research into consumer choice relies upon the assumption that decision making is based upon a conscious, i.e. rational information processing [Dijksterhuis 2005, Carlson 2008]. However, as mentioned before, many choices are made unconsciously and are strongly affected by the environment [Dijksterhuis et al., 2005]. This explains the problem of most consumer researches where respondents are asked directly towards their preferences [Interview 4, Koeneman]. Asking respondents to rate the importance of characteristics or to explain their choices, assumes a conscious and rational decision making process. For this topic, it would be sufficient to focus on the empirical and observational choice of the consumer. By doing this, the attention lies on the actual choice of the consumer without having to explain this choice. This gives a more realistic way of measuring real choices.

Another difficulty when measuring choices is the fact that when consumers do not (or hardly) process the various pros and cons of shopping centre. When some of these unconsciously made shopping choices are highly habitualized and based on attitudes that are automatically activated on the perception of a shopping centre [Fazio, Sanbonmatsu, Powell,&Kardes, 1986]. Here, some information processing may have taken place, but not right before one goes to a store or a shopping centre. Instead, these choices are influenced by automatically activated attitudes that are based on earlier information processing in the past (compare to the 6th step of Schwartz, 2004). For consumer researches, one should be aware how these remembered utilities* can affect the given answers. In measuring consumer's preferences, one has to take into account what one measures and what one intends to measure.

*Utility is a concept indicating the satisfaction of consumers with perceived characteristics of a good. The selected characteristics of a good, in this thesis the shopping centre characteristics, are valued by the consumer in such a way as described by Schwartz in the previous paragraph (cross-reference). The concept of utility stems from the field of economy [Kuhfeld, 2005] and is a central concept in the method used to investigate the valuation of the shopping centre characteristics by consumers in this research project.

2.3.4 Conclusion

Concluding, this chapter shows why even moderate choices are often complex to make, difficult to explain and therefore hard to measure. Nevertheless, understanding these choices are key to a successful product, project or as in this study a 'shopping centre'. The next chapter will go into the research methodology best used for measuring choices. Based on the various problems described in this chapter for measuring choices, the type methodology should therefore be chosen carefully. Figure 2.5 shows an overview of the various problems of measuring consumers' choices. Because respondents do not always know why they choose something and often act differently than how they say they would act, one should be careful with direct asking.

Another problem that occurred from the literature was the fact that utilities often influence choices. For this research it is important to filter these utilities in order to compare the output of the respondents on the characteristics of a (non particular) inner city shopping centre. To accomplish this non-fictional (images) should be used in the questionnaire.

Choices are often made based on a variety of characteristics (attributes), when measuring choices it is therefore important to let respondents base there answers on a combination of attributes as well.

Finally environmental cues influence choices but respondents are often unaware of this. To add these cues to the decision making process, they should be visualized in order to make them easily understandable.

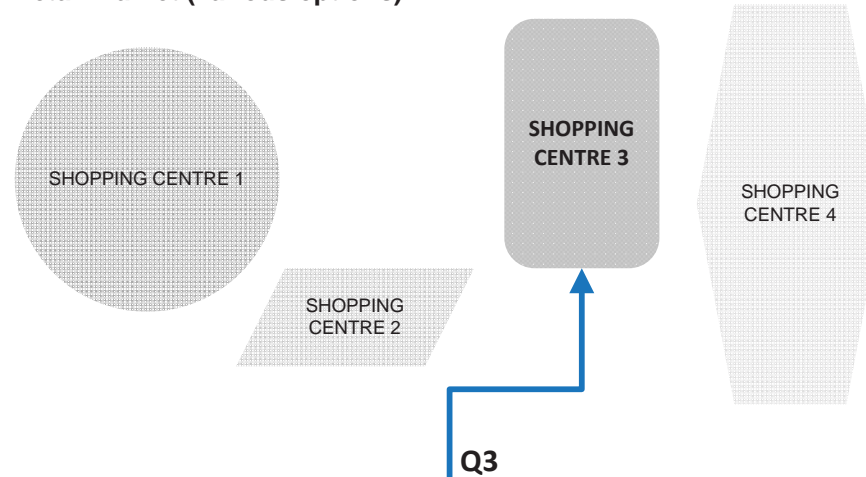
Problem	Result
Respondents do not always know, why they choose, what they choose	Be careful with direct questions
Respondents often do not act like they would say the would act	Be careful with direct questions
Utilities often influence choices making answers personal and unclear	In order to compare the output of the respondents on the characteristic of shopping centres, no existing centres (images) should be used in the questionnaire
Choices are made based on a variety of attributes	Respondent should also base their answers on a variety of drives at the same time
Environmental cues influence choice but respondents are often unaware of this	These cues should be visualized in order to easily understand them

Figure 2.5: An overview of possible problems when measuring consumers choices.

2.4 Conceptual model

The conceptual model visualised the research questions and the various hypothesis in a model. Again, the central three topics (and research questions) of the thesis are displayed in the grey boxes. Based on the literature studied, there is assumed that both shopping centre characteristics as consumers' characteristics influence the choice of consumers for inner city shopping centres. Consumers' characteristics are in this case divided in consumers' demographics and consumers' preferences towards shopping. The aim of including the second group is to measure how shopping preferences and behaviours influence the choice for inner city shopping centre. This was done based on the literature supporting that hedonic and utilitarian shoppers have different preferences towards shopping. For the methodology, two hypotheses are tested. According to the literature studied in this chapter there was a difference in how people say they would choose and how they choose. Direct and indirect research methods should therefore result in different outcomes. The second hypothesis about the research method is based on the still limited knowledge about the influence of vignette layout [Jansen, 2009]. This thesis will test what the influence of using text or image is on the answers of the respondents. More about the research method and about this hypothesis in particular can be read in the next chapter.

Retail Market (various options)



Consumers' Choice (Method)
 When using a discrete choice analysis what is the best way to measure a combination of verbal and non-verbal aspects in the same vignette?

H4 (§3.3): The layout of the vignette is of influence on the choice of the respondent .

Shopping Center (Product)
 What shopping centre characteristics influence the choice of the consumers and to what extent do these characteristics influence this choice?

H3 (§2.2): Shopping centre characteristics influence the consumers' choices (for a shopping centre).

Consumer
 What consumer characteristics influence the choice of the consumers and to what extent do these characteristics influence this choice?

H1 (§2.1): Consumer characteristics influences their choices for a shopping centre.

H2 (§2.1) : Consumers' shopping purpose influences their choices for a shopping centre.



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Mehr Bücher für Duisburg.
Die Haversche gibt's jetzt 2x.

Jetzt auch im
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Duisbuch
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3 Research Method

The aim of this chapter describe the research method used for this study, a discrete choice analysis. Based on the various possible methods, this chapter explains why this is the most sufficient method to

measure consumer preferences. It later explains how the method works what can be added to improve the method for future use.

3.1 Measuring consumer choices

To explain the most suitable research method for this study the classification framework of Breidert is used (figure 3.1). This framework is a model of the possible research methods available [Breidert et al., 2006].

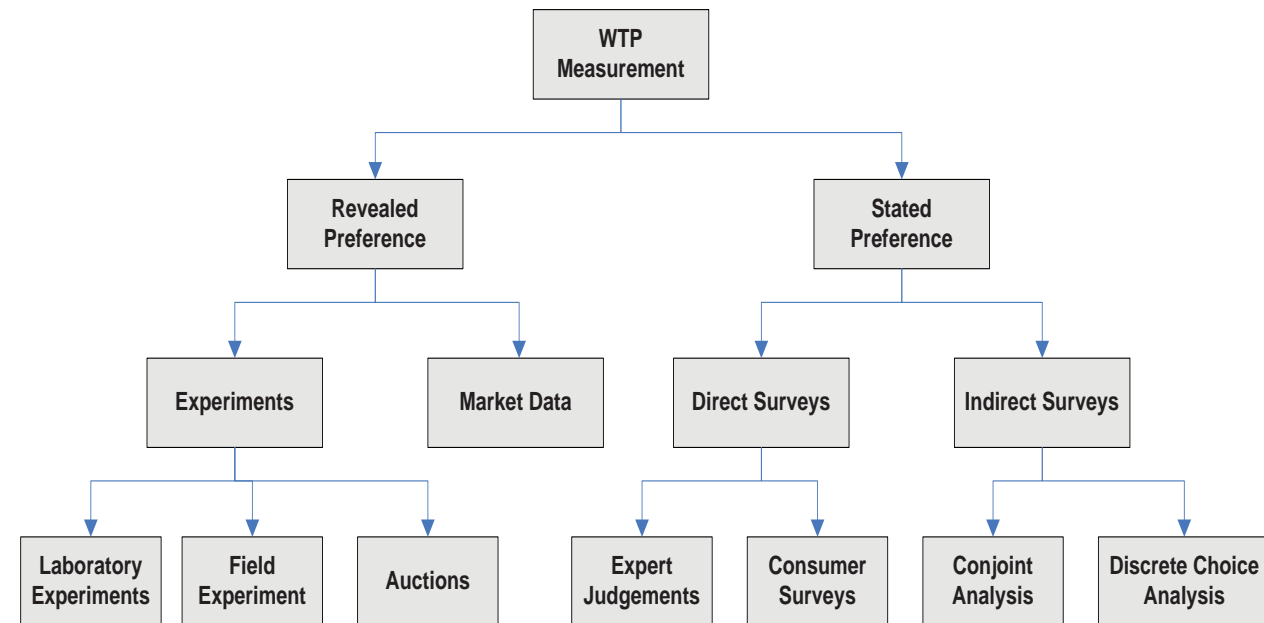


Figure 3.1: Classification framework for research methods [Breidert, 2006].

Stated Preference

According to Breidert's model (Figure 3.1), there are two main approaches in the assessment of consumer preferences, i.e. revealed preferences and stated preferences. Revealed preference methods use already available data; the choices are based on data gained in the past. Stated preference methods use new data that is generated in for example surveys. Respondents in a stated preference research are asked for their preferences, choices based on illusory representations of real life situations. Since the one of the purposes of this research is to measure consumer choices to gain new information about their preference, a stated preference method is the most sufficient option to choose.

3.1.1 Indirect surveys

After choosing for a stated preference method, the second step is to choose between a direct survey and an indirect survey. In direct surveys the respondent is directly asked about his or her choice from an array of possible choices. The disadvantage of asking respondents directly about their choice, is that there is a chance they will strategically answer the question. For example, Apple is planning to launch a new iPod and is therefore interested in what consumers are 'willing to pay' for this new product. If respondents are asked directly what they are willing to pay, they almost certainly give a strategic answer. An answer much lower than they would be willing to pay for the product in real life, because such an answer might work in their advantage (strategic answering). The problem here is that one is not measuring the real preferences of consumers but their ideals and wishes. These are different things.

The indirect stated preference method is a statistical technique used in market research to determine how people value different features that make up an individual product, service or project. The indirect stated preference is based upon the choices of the respondents of an array of product alternatives. The method is commonly used when new products are tested for the market. The indirect stated preference method is a method that collects data by using 'vignettes'. A vignette is a short subscription (text, image, video or a combination of those) of a fictional situation or representation that contains relevant information presented to the respondent. A vignette consists of a combination of characteristics that are typically referred to as attributes. On the vignette, each attribute is optioned for two or more input levels (attribute levels). By combining different attribute levels, different representations (products) are created. The respondents can give their preference towards the vignette [Verma et al., 2004]. The aim of the method is to quantify the assigned valuation (often referred to as utility) using a special statistical model. Because respondents are not directly asked for their opinion, but only judge the vignette that combines several attributes at once, the problem of strategic answering is no longer a major issue. Consequently, the validity, the degree of what is measured and what is aimed to be measured, becomes a lot higher. In other words, what the respondent tells in the survey and what they do in real life are more alike. According to Verma [2008], using vignettes is ideal to determine changes of potential aspects and to estimate the optimal mix of different aspects. Figure 3.2 shows the different topics of research, the vignette method is commonly used for [Verma et al., 2008].

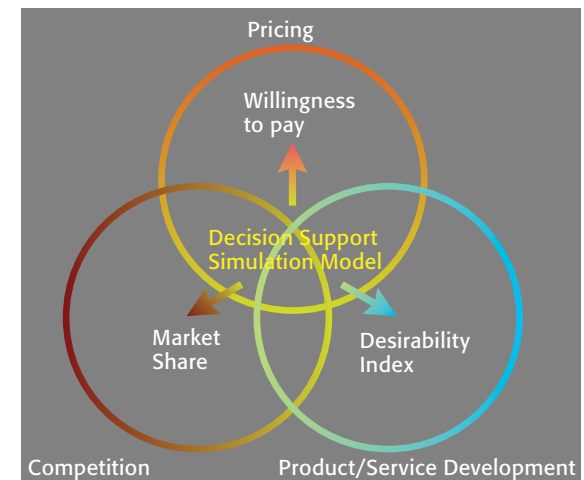


Figure 3.2: Interrelated managerial decision-making simulations based on discrete choice modelling [Verma et al., 2008]



Figure 3.5: The problem of strategic answering (Capgemini, 2008)

Advantages and disadvantages of using vignettes

Like every method, working with vignettes has a number of advantages and disadvantages. This section is to briefly cover both groups.

Advantages [Van den Berkhof, 2008, p40]:

- You need in comparison with a normal survey 'relative' little respondents.
- Complex issues can be reproduced by clear representations in the form of vignettes.
- The results are a lot more general compared to for example case studies. The results of case studies are often strongly connected to the particular object studied.
- It is possible to measure the connection of a number of aspects in stat of only the effect of one aspect.
- Designing your own vignette, gives you more control over the sort, number and level of the attributes you want to measure.

Disadvantages [Van den Berkhof, 2008, p40]:

- A relative large number of respondents is needed to measure influence of the respondents' individual characteristics.
- Respondents often judge the vignettes more rational than they would react in real life situations.
- It takes a lot of effort and time to get the vignettes' designed right.

3.1.2 Rating Based / Ranking Based / Choice Based

Indirect stated preference methods can again be divided into 'conjoint analysis' and 'discrete choice analysis'. These two methods are used to value every attribute individually in order to determine the optimal attribute mix for a product [Lee, 2001].

Conjoint analysis is about rating or ranking vignettes. The respondent either rates the vignettes with a score (Rating Based) or ranks the vignettes in a certain order (Ranking Based).

There are a number of disadvantages to the rating based method. The main problem is that the vignettes are rated independently. Two different respondents with the same feeling towards the vignette can still rate it differently. As a result, the scores of the different respondent are hard to compare. Another disadvantage is that one is limited with the number of vignettes that can use in research. By using too many, the respondent loses overview.

The type of conjoint analysis best suited to this research project is the Discrete Choice Analysis (DCA), a form of choice based indirect stated preferences. In a DCA, the respondent is given a number of vignettes (a set). In this set of two or more vignettes, the respondents choose one vignette according to their own preference. An advantage

of this method is that when two respondents feel the same about the set; this will result in the same answer. According to Van Berkhof [2008] the choice based method, is the method most suitable to measure the real life choices of the consumer.

During the last few years, research has redefined a sophisticated set of tools for discrete choice modelling that is available to service companies seeking an accurate understanding of the attributes of consumer choice. Such tools and methodologies allow the prediction of market performance for new or existing services and the expected

3.2 Discrete Choice Analysis

DCA has been proven especially valuable in understanding, modelling and predicting consumer decision-making since Daniel L. McFadden introduced the methodology (and subsequently was awarded the Nobel Prize for Economics in 2000). The choice modelling work pioneered by McFadden focuses on both the economic reasons for individual choices and the ways in which researchers can measure and predict these choices. Economic choice theory assumes that individual choice behaviour is generated by maximization of preferences or utility, which Louviere [1988] defines as “judgments, impressions, or evaluations that decision-makers form of products or services, taking all the determinant attribute information into account.” DCA is one of only a few modelling approaches based on a, well-tested, and relatively comprehensive behavioural theory (Random Utility Theory - RUT) which leads to a wide variety of testable and tractable models of choice behaviour [Hanlon, 2009]. RUT provides a sound theoretical link between human behaviour observed in experiments, surveys, or other forms of stated preferences and the behaviour observed in real-life situations [Verma, Plaschka and Louviere, 2002]. Combining McFadden’s framework with experimental choice analysis methods pioneered by Louviere provides the right method to guide in the design of consumer-centric shopping centres.

Incorporating consumer choice modelling into the decision-making process provides a method for relying on consumer-driven data to support for example strategic retail investment decisions [Hanlon, 2009].

As discussed by Verma, Plaschka and Louviere [2002], DCA is often compared to and confused with another strategic marketing research method known as conjoint analysis. While DCA and conjoint both examine consumer responses to experimentally designed product and service profiles, the difference lies in the fact that in the conjoint analysis data are obtained via ratings and rankings, regarding specific attribute bundles. DCA places respondents in simulated choice-making situations derived from realistic variations of product and service offerings that might be available in the market. DCA is used to identify the relative weights that respondents accord to product or service features and attributes.

The weights are derived from consumers' responses to experimentally designed descriptions of product and service bundles. DCA results can lead to many managerially useful conclusions, such as identification of optimum product and service bundles, identification of market segments, measurement of brand equity, development of process improvement action plans and assessing Marketplace Possibilities. This is when the attribute influence the consumers choices [Hanlon, 2009].

3.2.1 DCA in steps

The discrete choice modelling approach requires that a representative sample of consumers make choices in simulated situations derived from realistic variations of actual service offerings. The execution of a discrete choice modelling project typically comprises three broad steps [Verma et al., 2008]. First, using qualitative market assessment, literature study, consumer interviews, expert interviews, case studies, industry data, focus groups, and other information sources; a list of attributes that are believed to influence consumers' choice is compiled (chapter 4). Once the list of choice attributes is finalized, sophisticated experimental design techniques are used to develop many realistic versions of service offerings. Great care must be taken to ensure that all (or at least as many as possible) of the determinant attributes are identified and expressed in terms understood by consumers. One should consider the following questions when building a list of market choice attributes: (1) Is it necessary to include a complete list of all relevant product and service attributes?; and (2) How can product and service attributes be configured so that the critical choice attributes are identified while the choice experiment is at once realistic and small enough to be tractable?

The next step is to identify the range of variability, or the levels of the demand-choice attributes (chapter 5). Although the range of variability should span the actual values of attributes observed in the market and include the entire range of possible options, it should also be small enough to keep the experiment to a realistic and practical size, so as not to overwhelm the respondents with too many scenarios from which to choose. Once the range is determined, it must be divided into two or more discrete levels for experimental-design purposes. Two levels are sufficient to estimate the linear effect that the attributes have on choice, but more than two levels are needed to estimate non-linear effects for attributes [Hanlon, 2009].

Constructing the choice experiment

After identifying relevant choice attributes, a systematic procedure is used to scientifically design consumer choice configurations that satisfy rigorous mathematical and statistical considerations. A choice experiment typically consists of a series of choice exercises in which respondents are asked to choose an image consisting of a bundle of characteristics, called attributes. These bundles of attributes are called vignettes. The respondent then chooses

from a set of two vignettes. An example of a choice exercise is shown in Figure 3.3. A choice exercise can be framed in several ways. For example, respondents can be shown two shopping centre profiles and asked to choose centre number one, centre number two, or sometimes neither one. This will be the form used for the study based on the available knowledge. A second possible approach is to show respondents one shopping centre profile at a time and ask them either to accept or reject the shopping centre represented by each profile. A third option is to ask respondents to identify the most desirable and the least desirable features for each of the shopping centres presented. A fourth approach would be to ask respondents to indicate how often (say, in a six-month period) they might choose to visit each shopping centre presented in a profile. Finally, in some applications respondents are asked to compare a hypothetical shopping centre profile with a real shopping centre (e.g., the last centre the respondent actually visited). In designing the DCA exercise, researchers must strive for realistic descriptions of products or services [Verma, 2008]. The primary objective is to build choice exercises that represent the actual decision situation as closely as possible. Nevertheless, the shopping centre should not be realistically copied from well known examples to prevent measuring remembered and expected utilities instead of general preferences (Chapter 2). For this study, the first choice exercise is used based on available knowledge about this topic.

The nature of each consumer choice exercise depends on the attributes and their possible levels. The following two chapters will discuss the selection of the attributes and attribute levels of this research project. To successfully assess each attribute's effect on consumer preferences, respondents are presented with several choice scenarios generated by means of experimental design procedures. Such design procedures typically generate many possible alternatives. The total number of possible options that can be created by for example six attributes of each three levels (used in this study) is for instance, 729 (calculated as follows: $3 \times 3 \times 3 \times 3 \times 3 \times 3 = 729$). Because the respondent is asked to choose between a set of two different vignettes, this number even increases to 265,356 ($n=729, k=2, (n k) = n^k/k! = [n(n-1)(n-2)...(n-k+1)] / [k(k-1)(k-2)...1] \implies (729 \ 2) = (729 * 728) / 2 = 530,712 / 2 = 265,356$). Fortunately, it is not necessary to ask respondents to evaluate all possible options. Respondents typically evaluate no more than 32 scenarios in a given choice experiment [Verma, 2008]. This reduction in numbers is made possible by the fact that respondents base their choices on certain 'primary' attributes that matter most (e.g. available retail program). The effects of these primary attributes on decisions are called main effects, because they account for most of the variability in responses. Beyond those main effects, two-way interaction effects (e.g., retail program interacting with f.i. parking or catering) account for an additional, but typically small proportion of response variability.

A statistical technique called fractional factorial design and blocking, are used to reduce the number of choice options presented to each respondent. A fractional factorial design allows for a reduction in the number of

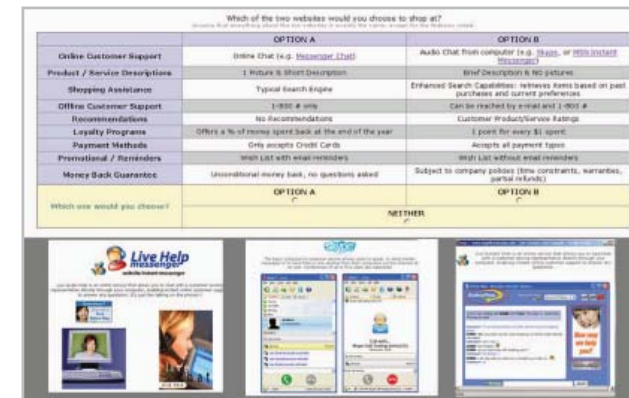


Figure 3.3: Example of a discrete choice exercise; measuring the choice of an online retailer [Verma et al., 2008]

combinations of choice-attributes while still capturing the main effects and interaction effects. In the example given above, one is able to reduce the number of retail mix options from 729 to 72 unique vignettes. Blocking techniques are used to further divide the experimentally designed choice exercises into several statistically equivalent sub-groups. For instance, employing the fractional factorial design process can generate 72 mall scenarios, and then the use of blocking reduces the number of scenarios for individual respondents. For example, 3 blocks of 12 choice of 2 vignettes can be created ($3 \times 12 \times 2 = 72$). However, it should be noted that subdividing a fractional factorial design requires fairly large sample sizes for statistically reliable results [Pullman and Goodale, 1999]. Once the experimental design is executed in the form of a set of choice scenarios, response data are collected online from a sample that represents the population of interest (the right target group).

Discrete choice responses are categorical, because respondents choose one vignette from each set of vignettes. Consequently, the number of needed respondents increase to several hundred observations [Hanlon, 2009]. It is important to note that when one combines the responses of many individuals to estimate choice models, differences in individual preferences become an issue. Both choice sets and respondents in choice experiments are randomly assigned to blocks, with the purpose of that randomization being to ensure that the resulting data are orthogonal. This is an important feature, since it allows for the independent estimation of the main effects [Louvier et al. 2001, Lewis 1984].

The most common form of the econometric model based on discrete-choice analysis is known as the multinomial logit (MNL) model (as explained by Verma 1999), which is expressed as:

$$P_{ij} = \frac{e^{\mu V_{ij}}}{\sum_{k=1}^K e^{\mu V_{kj}}}$$

where ' P_{ij} ' represents the probability of selecting option 'i' during the choice exercise which contains 'K' different alternatives. ' V_{ij} ' represents the systematic utility of option 'i' in choice exercise 'j'. The parameter μ is a relative scale for the error associated with the model [Lowiere, Hensher and Swait, 2001].

The utility function ' V_{ij} ' in its simplest form can be represented as:

$$V_{ij} = \sum_{l=1}^L \beta_l x_{ijl}$$

Where ' x_{ijl} ' represents the value of choice-attribute 'l' of option 'i' in choice exercise 'j'. The parameter ' β_l ' is the relative utility associated with choice attribute 'l', and 'L' represents the total number of attributes.

3.2.2 Example

For a better visual understanding of the DCA, this paragraph will illustrate an example of the method. A number of recent studies have used DCA within the context of retail preferences of the consumer. Derk van den Berkhof, a graduate at Delft University of Technology used the DCA to research the influence of design aspects in the lounges of Schiphol Airport on the experience of the consumer.

The motive for Van den Berkhof's research came from Schiphol Amsterdam Airport. Schiphol noticed that the lounge did not meet up with passengers' expectations, and the lounge was redesigned a second time. To avoid this kind of expensive issues, Van den Berkhof used the DCA to show how passengers react to their environment and how the environment can be used to influence the affect of the passengers in a positive way.

In this DCA, passengers were asked to fill out a photo questionnaire with rendered images of lounges that were systematically varied to measure the choices of the passengers of design elements. The participants of the questionnaire were asked to choose between two images representing a fictive lounge that differed on eight attributes, namely Form, Layout, Dimension, Colour, Lighting, Uniqueness of Holland, Signing and the Green (Figure 3.4).

Attributes	Level 1	Level 2
1. Form	Orthogonal	Organic
2. Layout	Straight	Curved
3. Dimension	Wide	Narrow
4. Colour	White	Black
5. Lightning	Cold lightning	Warm lightning
6. Uniqueness of Holland	Holland	Unrecognizable
7. Signing	Signing	No signing
8. Green	Planting	No planting



Figure 3.4: The DCA study towards the influence of design elements of the Schiphol airport lounges on the experience of the travelers [Van den Berkhof, 2008].

3.3 Rendered image vs. Text

H4: The layout of the vignette is of influence on the choice of the respondent

One of the targets of this research is to increase the knowledge about how choices are influenced by the presentation of the vignette. As mentioned in the first chapter, a number of students used the method using different presentations on their vignettes. This research will look into what difference visual images make in comparison with text on the consumers' choice to the same vignettes. In other words, in what way is the respondent influenced by the layout of the (same) vignette? According to Jansen et al. [2009], it is easy to think that photographs are better, since they may clarify particular attributes (e.g., architectural style) and make the choice task more realistic for the respondents. However, on the other side, photographs may disturb the results as respondents may evaluate accidental details on the render such as the colour of the window frames.

Jansen et al. conducted their research based on two subsequent pilot studies on the impact of including images in a web-based questionnaire. Notice that this study was not a DCA. In the first study, eight dwelling profiles were presented in three different ways (text only, text and colour photo and text and black-and-white photo) to 28 respondents. In the second study, two different instruments were used: one with written information and directly shown photo-collages; the other with written information and photo-collages on request only. Both studies showed that the inclusion of images led to a number of differences between the results obtained with the various presentation methods. In their conclusion, Jansen et al. wrote: "These differences may be explained by accidental details on the images. Furthermore, dwelling characteristics appear to be more important to the respondents' overall evaluation of a dwelling when shown with photos than when presented in written format."

Using Jansen's research as a starting point, this research will take the difference between image and text a step further by monitoring the difference of layouts on the vignettes in a DCA. This time not by using photographs but by using computer rendered images. Based on the three layouts of Van den Berkhof [2008], Snoei [2008] and Bogerd [2009], special attention went out the use of text and/or images to display the attributes on the vignette (Figure 1.6).

Van den Berkhof [2008], chose for measuring the atmosphere of two airport lounges, to display the all attributes in one image, using no text at all. His motive was based on a study, executed by Schiphol Airport, stating that they failed to measure the atmosphere of the lounge by using questionnaires only. His motivation was that architectural and atmospherically features were not sufficient to describe. This was according to Van den Berkhof the reasons Schiphol failed to measure this and a motivation for him to used image based vignettes in stead of texts based vignettes.

Snoei [2008], used for his research towards the willingness to pay for sustainability in office buildings to design his vignettes almost completely in text. In this research he gave no clear motivation for this.

Bogerd [2009] started with image based vignettes as well but changed this after his pilot study. In Bogerd's pilot study the problem occurred that some of the images on the vignette were unclear. Bogerd writes the following about this problem: "Respondents stated that the differences between the images in the discrete choice experiment were not very clear. The attributes on the images were also too technical. Some attributes and the layout of the images were changed to clarify the discrete choice experiments." [Bogerd, 2009, p11]. As a solution, Bogerd needed to add extra information buttons (text), in order to describe the displayed images. This resulted in a combination of both text and images in the vignettes.

The fifth chapter will go into the designs of the two different vignette layouts of this thesis.

3.4 Conclusions

The essence of this thesis is to sufficiently measure how consumers value inner city shopping centre characteristics in The Netherlands and Germany. These values are than, based on the finding of several other studies, used to see if there were any relation with the demographical characteristics and overall preference towards shopping of the consumers.

To accomplish this, the most suitable research method would be a discrete choice analysis (DCA). Instead of asking consumers directly to their preferences, DCA uses a indirect method to measure consumers' choices. In a DCA, respondents choose between two images (vignettes) representing a fictional inner city shopping centre. Every vignette consisted of a number of characteristics (main attributes). The main attributes will be determined in the next chapter.

Special attention went out to the layout of the vignettes as various researches in the past have used text, images or a combination of both to translate their main attributes (Berkhof 2008, Snoei 2008, Bogerd 2009). Yet, there is still no clear understanding of the influence of these layouts on the choices of the respondents [Jansen et al. 2009].



4 Choice Attributes

Based on the research method explained in the previous chapter, the goal of this chapter is to select the six most important characteristics (main attributes)

of inner city shopping centres that influence the preferences of the consumers.

4.1 Choice attributes of the DCA

As explained in the previous chapter, consumers' choices will be measured using discrete choice analysis (DCA). Respondents have to choose between two vignettes. Every vignette is designed according to a number of so called 'choice attributes' / 'main attributes', in short 'attributes'. The goal of this chapter is to select the six most important characteristics (main attributes) of shopping centres that influence the choice of the consumer for an inner city shopping centre. These main attributes are based on both literature (chapter 2) and expert interviews (chapter 2 and 4). In the next chapter, these attributes will be discussed and adjusted to be made usable for a DCA.

The final vignettes used in the DCA consist of various combinations of the selected attributes. In order to answer the third research about the What is best-suited methodological method to research consumer choice and how can this method be optimized for this field of research, question, two different vignette layouts are used (chapter 3). Because both vignettes are visual, atmosphere characteristics like; smell, sound and climate are hard to visualize and will therefore be excluded from the research.

To make a long list of potential attributes, a broad summary was given in the second chapter of this report. Based on this overview of various comparable and already conducted researches, a list of 11 inner city shopping centre characteristics was formed. The 'long list' of 11 characteristics will be narrowed down to a 'short list' of 6 attributes for the DCA, based on the interview answers of the retail experts.

4.2 The long list

In a DCA, only a limited number of attributes can be displayed for the vignette. According to Gladwell [2002] the ideal number of attributes per vignette is six. Snoei [2008] mentioned that the magic number of attributes per vignette is seven, plus or minus two.

The reason for the limited number of attributes has to do with the capability of the human brain. The short-term memory of an average person can only process seven 'aspects' of information at the same time. Using more than seven attributes is therefore useless and will only be confusing for the respondent. This research will work with vignette combined of six main attributes. This number was advised by Van Oel, based on her experience within the field of the method. The main purpose of the literature review was to create a 'long list' of ten to twenty attributes. Subsequently, expert interviews were conducted to assist in selecting the six most important attributes from the long list. The following 11 shopping centre characteristics are part of the long list (chapter 2):

1. Accessibility (how easy is it to reach the centre)
2. Parking
3. Retail program
4. Size of the centre
5. Travel time (to the centre)
6. Atmosphere
7. Location
8. Design (Architecture)
9. Catering
10. Leisure
11. Service



Figure 4.1: Van Oss (Multi Development) uses the cards to rank the various attributes of the long list.

4.3 Expert interviews

Purpose

The interviews were used to:

- Select important factors influencing consumers' choice for an inner city shopping centre. This as input for the attributes of the DCA.
- Select the order of importance. The most important factors will be operationalized as attribute on the vignettes.
- Gain more information about retail.
- Gain more information about consumers.
- Gain more information about the attributes and attribute levels.

Method

Together with Arno Ruigrok, director of research and concepts at Multi Development, a list of nine experts was made. The experts were selected for their current position, working experience and previous education. The table below gives a summary of the nine interviewed retail professionals:

Berton de Bont	25-11-2009, Gouda	Senior Architect	T+T (EU)
Ellen van der Veltz	30-11-2009, Gouda	Mall management	Multi (EU)
Femke Wokke	03-12-2009, Gouda	Research and communication	Multi (EU)
Aerjen Koeneman	04-12-2009, Gouda	Project Developer	Multi (NL)
Willem-Joost de Vries	04-12-2009, Gouda	Partner Architect	T+T (EU)
Richard Reulink	21-01-2010, Gouda	Director commerce/former T+T	Multi (NL)
Sander van Oss	21-01-2010, Gouda	Project Developer	Multi (NL)
Heino Vink	25-01-2010, Gouda	Director commerce	Multi (NL)
Peter Trimp	01-02-2010, Gouda	Partner Architect	T+T (EU)

Procedure

Before the start of the actual interview, the motive and target of the research were briefly explained to the expert. The next step was to explain the motive and target of the interview. This explanation included some definitions and the research methodology.

The interview consisted of several open questions, two statements and two ranking based questions. All 11 aspects for ranking were printed on individual cards. The persons interviewed were asked to rank these aspects according to what they thought would be the most influential aspect attracting consumers to a shopping centre. One of the advantages of the card method is that choices are easily adjustable. Another advantages are that answers are better comparable.

Two blank cards were added in case the expert would like to add a characteristic. This was done to assure that no important aspect were accidentally left out of the long list.

The open questions were mainly to gain more information about retail, western European market, attribute levels and consumers.

4.4 Results

“Location, location, location” [Ellsworth Milton Statler]

4.4.1 Ranking preferences

Respondents were asked to rank the following characteristics according to what they thought would be the most influential characteristics on the consumers’ choice towards an inner city shopping centre. The answers for the ranking question, given by the experts are summarized in Figure 4.2 and Figure 4.3. Figure 4.2 gives the average score of all the experts together. The lower the score, the higher the overall ranking. For example, every respondent gave location as most important characteristic, $1 + 1 + \dots = 9$ (added scores) / 9 (experts) = 1.

Probably more interesting is the box plot chart, shown in Figure 4.3. A box plot indicates the spread of the observations. The larger the blue box in Figure x, the bigger the spreading and thus the lower the consistency across interviewees.

Location is according to the experts clearly the key characteristic for success of a shopping centre being the most important element in attracting consumers. Location is followed directly by retail program and accessibility. Parking (4th), travel time (5th) and atmosphere (6th) are according to most experts important but the opinions between the professionals are more diverse compared to the first three characteristics. According to all experts; Catering, Service and Leisure are considered less important.

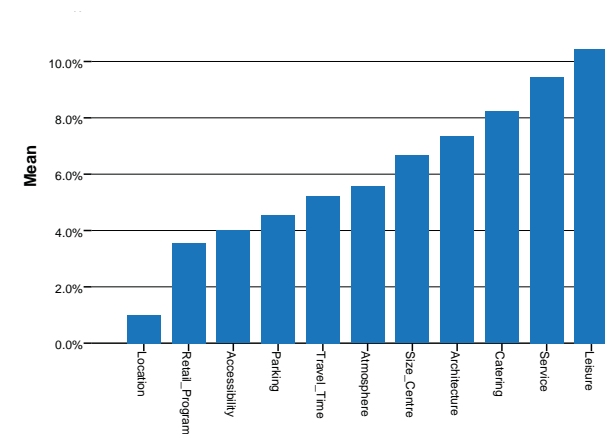


Figure 4.2: Average score of the interviewed retail experts.

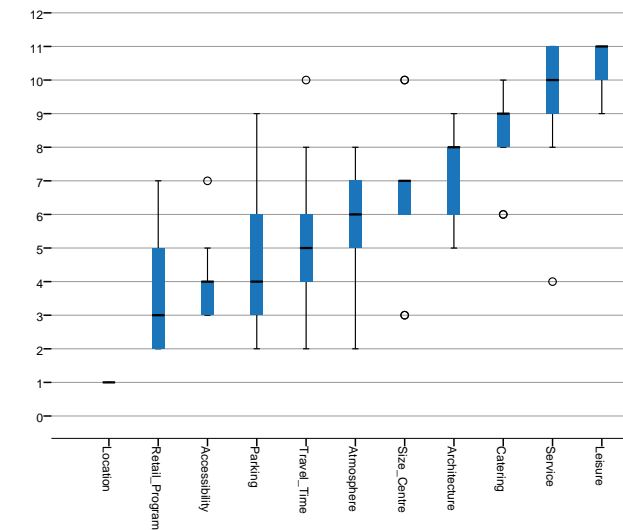


Figure 4.3: Box plot chart of the answers given by the experts interviewed. It shows that location is unanimous the most important characteristic (no spread) and leisure the least important characteristic. Parking is the characteristic with the highest diversity (spread) in the answers given.

Ranks	
	Mean Rank
Retail_Program	2.61
Location	1.00
Parking	4.17
Accessibility	3.61
Sustainability	12.00
Catering	8.78
Leisure	10.72
Atmosphere	5.17
Travel_Time	5.00
Service	10.06
Architecture	7.78
Size_Centre	7.11

Figure 4.3: Kendall's Coefficient of Concordance.

Test Statistics	
N	9
Kendall's Wa	.832
Chi-Square	92.307
df	11
Asymp. Sig.	.000

Figure 4.4: Kendall's Coefficient of Concordance.

4.4.2 Consistency in agreement among experts (Kendall's W)

Kendall's W is used to measure the level of agreement between a group of respondents (in this case experts) for a ranking based question. Kendall's W is a non-parametric procedure. The method starts measuring the chance based on the collected data. The rating for a Kendall's W experiment varies between 0 (no comparison) and 1 (complete comparison). Suppose, for instance, that a number of people have been asked to rank a list of news websites, from most important to least important. Kendall's W can be calculated from these data. If the test statistic W is 1, then all the survey respondents have been unanimous, and each respondent has assigned the same order to the list of concerns. If W is 0, then there is no overall trend of agreement among the respondents, and their responses may be regarded as essentially random. Intermediate values of W indicate a greater or lesser degree of unanimity among the various responses.

Kendall's W is often used for topics of research where the outcome is uncertain because of the limited information known at the start of the experiment.

Figure 4.2 summarizes the interpretations of the possible outcomes of Kendall W. The outcome of the experiment for the characteristics of a shopping centre is 0,832. This indicates a high level of agreement. Because all respondents have the same number one (location) the experiment is done again with this aspect excluded. The outcome of the second experiment is slightly lower (0.791) compared to the first outcome. Based on these two experiments, it might be concluded that experts consistently ranked the order of the characteristics and that the most important characteristic in attracting consumers to a shopping centre is location, followed by the retail program.

Kendall's W	Interpretation	Confidence in ranks
W=0	No agreement	None
W=0.1	Very weak agreement	None
W=0.3	Weak agreement	Low
W=0.5	Moderate agreement	Fair
W=0.8	Strong agreement	High
W=0.9	Very strong agreement	Very high
W=1.0	Complete agreement	Very high

Figure 4.2: Kendall's Coefficient of Concordance.

4.5 Conclusions

The main purpose of this chapter was to find the (six) main attributes for the DCA in order to answer the central question about what inner city shopping centre characteristics (main attributes) influence the choice of the consumers' choice.

Attributes in a DCA should have as little correlation as possible with another attribute. Attributes should thus not influence each other. With this knowledge, it is important to see which characteristics do correlate in order to filter or merge them. For example, travel time and accessibility, as well as retail program and size are strongly correlated. Although these characteristics are not exactly the same, they do influence each other. For example, it would be unrealistic to create an imaginary shopping centre with a travel time of five minutes but with bad accessibility. The same can be said for a small shopping centre with a large retail program. To prevent these variations in the DCA, travel time and accessibility will be clustered together as one driver: 'travel time'. Retail program and size are clustered as 'size'. The new outcome is displayed in Figure 4.5.

Although location is "always the most important aspect for the success of a shopping centre" [Interview 7, Van Oss], it is also hard to influence for a designer or developer. Location will therefore not be part of the vignettes. Service, and leisure all score weakly according to the experts and will therefore also be disregarded. According to De Vries many people in the Netherlands talk about leisure but no one accomplishes to create more than a cinema or a bowling centre [Interview 5, De Vries]. Catering was ranked as the 9th most important, nevertheless this aspect is added due to the following experts' quotes. Van der Feltz says that catering is an important aspect to make a difference [Interview 2, Van der Feltz]. According to De Vries, Catering is also a form of leisure. Besides, we still lack knowledge on catering. An aspect that is becoming more important due to the tense retail market [Interview 5, De Vries]. Because location is not included and travel time / accessibility and retail program / size are clustered, catering will be included as the sixth main attribute in the research. The final six main attributes that will be included in the vignette therefore are:

1. **Travel time**
2. **Atmosphere**
3. **Design / Architecture**
4. **Size**
5. **Catering**
6. **Parking**

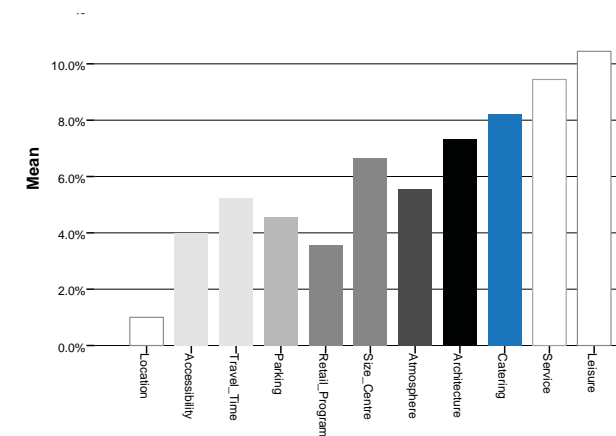


Figure 4.5: Overview of the outcome of the expert ranking. Because of strong correlation between 'Travel time' towards 'Accessibility' and 'Retail program' towards 'Size' these groups will be combined in one main attribute. The white bars are not part of the DCA



5 Attribute Levels

The purpose of the previous chapter was to verify the main attributes used for the DCA. This chapter is about how to determine and design the choice levels of these attributes. The first part of the chapter is

to establish the levels; the second part is about the translation of these attributes and levels into a vignette. A special attention goes out to the different vignette layouts used in this research.

5.1 Attribute levels

The purpose of the previous chapter was to verify the main attributes used for the DCA. This chapter is about how to determine and design the attribute levels of these attributes. The first part of the chapter is to establish the levels; the second part is about the translation of these attributes and levels into a vignette.

When searching for the right attribute levels, it is important to always consider how these can be displayed on the vignettes. According to Van Oel, every attribute in this study might have three different levels. More than two levels are required to estimate non-linear effects for attributes [Hanlon, 2009]. More than three levels can affect the clearness of the vignette [Verma, 2008].

To establish the attribute levels as realistic as possible, three inner city shopping centres in Western Europe were analyzed. All three centres were developed within the last five years by Multi Development. The three centres were chosen based for their diversity regarding the six main attributes. The shopping centres will be compared for the following characteristics:

- Size: Overall area of the retail in the centre in square meters.
- Retail program: Number of stores and type of stores.
- Catering: Number and type of catering facilities in the centre.
- Parking: Parking facilities and prices
- Design: Architecture from the outside and inside.

Because all the centres are located in the city centre, the location is not part of the analysis. For the comparison, the aim of the first part of this chapter is to divide every attribute in three levels rating in incremental levels. For example, the size will be classified into small, medium and large. The size of these three categories will be based on the analyzed centres. Catering and architecture can not be incrementally classified and therefore three distinct classes were derived from the analyzed centres.

To verify the attributes Atmosphere and Travel time, a slightly different approach is chosen. The levels of atmosphere will be based on several previous studies on this topic (Paragraph 5.1.2). Travel time is based on a question in the expert interviews about how long the maximum travel time can be for a consumer to a shopping centre.

Selection of the three centres

The three centres are chosen based on a number of criteria. All centres are developed by Multi. This makes the comparison simpler and it will be easier to obtain information, as this is also the graduation company of this thesis. The three centres were chosen using the following criteria:

- Developed by Multi
- Not older than five years
- Located in The Netherlands, Belgium or Germany
- Located in a city centre
- Between 10.000 and 80.000 m²
- Different architecture
- Different retail program
- Different catering program
- Different parking facilities
- Indoor
- Completed (in use)

Based on these restrictions the following three shopping centres were used for the analysis.

- Entre Deux, Maastricht, The Netherlands
- Centrum Galerie, Dresden, Germany
- Lilien-Carré, Wiesbaden, Germany

General information about the three centres (www.multi-development.com)



Figure 5.1: Entre Deux, Maastricht, The Netherlands.

Entre Deux	
Address	Helmstraat, Maastricht, The Netherlands
Program	12,000 m ² retail, bars and restaurants, 19 residential apartments
Parking	No direct parking
Developer	Developer Entre Deux Maastricht BV is a partnership between Multi Vastgoed and 3W
Architects	T+T Design, Gouda, The Netherlands.AMA Group Architekten, Maastricht, The Netherlands
Opened	November 2006



Figure 5.2: Lilien-Carré, Wiesbaden, Germany.

Lilien-Carré	
Address	Bahnhofsvorplatz, Wiesbaden, Germany
Program	26.000 m ² retail, 10.000 m ² offices
Parking	800 parking spaces
Developer	Multi Development Germany. GmbH
Architects	T+T Design, Gouda, The Netherlands. ARGE Ortner & Ortner / Kramm & Strigl, Berlin, Germany
Opened	March 2007

Centrum Galerie	
Address	Prager Straße, Dresden, Germany
Program	62.000 m ² retail, leisure and offices
Parking	1000 parking spaces
Developer	Multi Development Germany. GmbH
Architects	T+T Design, Gouda, The Netherlands. Peter Kulka, Dresden, Germany
Opened	September 2009

5.1.1 Architecture

As mentioned in the first paragraph of the second chapter, architecture is a difficult attribute to classify. There is no specific good or bad architecture. Bodegraven [2005] explains this by pointing out that a price winning architecture does not have to result in a successful shopping centre. This statement is supported by the two partner architects of T+T by saying that architecture should be custom made, the building itself should be an addition to a particular city, not to any city.

The same can be said for the three analyzed shopping centres. When comparing the images from the Entre Deux, Lilien-Carré and Centrum Galerie, it is easy to say what is different but it is impossible to say what is better. Especially keeping in mind that vignettes are not linked to a particular location.

As for the attribute levels of architecture, the images will not be based on 'good' or 'bad' but on three different styles, based on the analyzed shopping centres.

Describing the styles, Centrum Galerie could be indicated as modern, Entre Deux more as conservative and Lilien-Carré as more in between Centrum Galerie and Entre Deux. The three levels of architecture in the DCA will therefore be labelled as 'Modern', 'Medium' and 'Conservative'.

Based on the images of the centres, the next paragraph will describe what (for this research) is meant by the three attribute levels. In the description, special attention will be paid to materials, shapes and colours.



Figure 5.3: Centrum Galerie, Dresden, Germany.



Figure 5.4: 'Conservative' choice level for the architecture attribute.

Entre Deux Maastricht

Entre Deux is located in the city centre of Maastricht. Maastricht is one of the oldest cities in the Netherlands and famous for its classical city centre. The architectural style used for the shopping centre is completely in line with the old city. A conservative design was made to fit it in with its surrounding. To accomplish this, the architects have worked with classic materials like red/brownish bricks and sand stone. The latter being the type of stone found in the area of Maastricht.

The forms in the centre are all straight and the roof is semi open, which gives a transparent inside-outside feeling in the shopping centre. The following aspects will be used for the conservative attribute level for architecture:

1. Roof (Patterned and dominant)
2. Colours (Blue/purple)
3. Shapes (Straight/Curved)
4. Materials (Hard and single coloured)

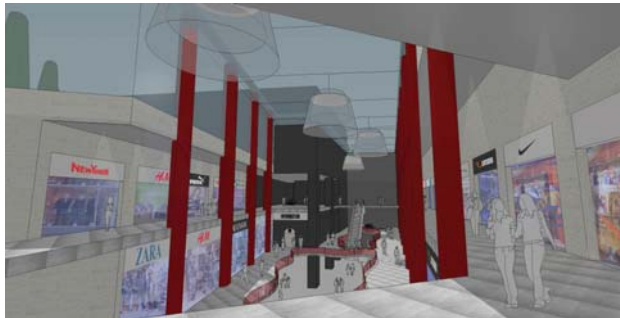


Figure 5.5: 'Medium' choice level for the architecture attribute.

Lilien-Carré Wiesbaden

Lilien-Carré is the shopping centre most suitable for the second attribute level. This is a shopping centre not as modern as Centrum Galerie and not as conservative as Entre Deux. The shopping centre, located close to the central station of Wiesbaden is shaped as a dome. There are three levels around central patio. The roof is transparent. The centre is round from the outside. Therefore, the form in the centre is dominantly organic but with straight lines in the centre. The colours used in the centre are mainly white and grey. One additional more 'extreme' material is used to add colour in the design. The rest of the materials used in the centre are mainly stone and glass. Based on these characteristics the following aspects will be part of the medium attribute level for architecture:

1. Roof (transparent)
2. Colors (White, grey and one extra colour)
3. Shapes (Curved/Straight)
4. Materials (Stone and glass).

Centrum Galerie Dresden

Based on the various renders, artist impressions and photos, the following aspects characterize the style and will therefore be part of the vignette. Three dominant features determine the style. The roof is made from a patterned half transparent material. Due to artificial lighting, the colours can change from bright blue to bright purple. The shopping centre itself is a combination of contradictions between light and dark colours and straight and curved forms. Based on characteristics the following aspects will be translated in the modern attribute level for architecture:

1. Roof (Patterned and dominant)
2. Colors (Blue/purple)
3. Shapes (Straight/Curved)
4. Materials (Hard and single colored)

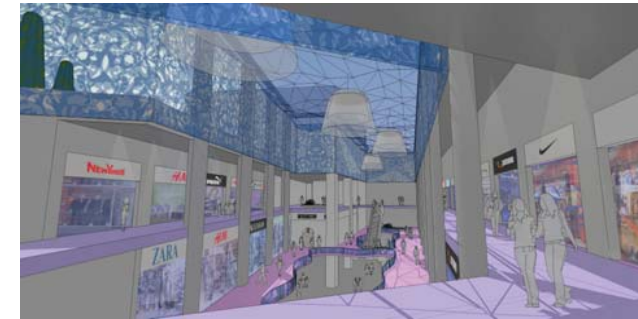


Figure 5.6: 'Modern' choice level for the architecture attribute.

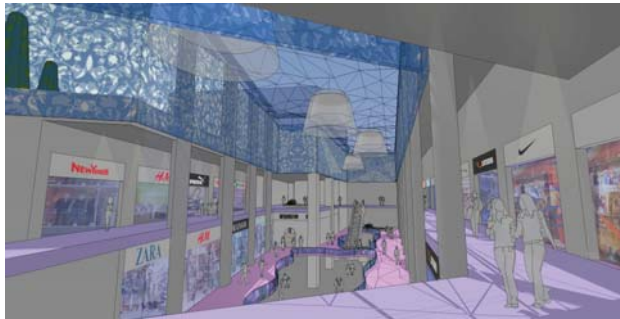


Figure 5.7: An overview of the atmosphere improvements in the image on the vignette.

5.1.2 Atmosphere

As explained before, the attributes 'Travel time' and 'Atmosphere' are not based on the analyzed shopping centres. To determine the levels of 'Atmosphere' three previous studies will be used. Several graduates of the Delft University of Technology graduated on the pleasantness of an environment. Bodegraven [2004] performed his study on shopping streets, Limonard [2007] on car parks and Van den Berkhof (2008) on the traveller lounges of Schiphol Airport.

Not only did they select a number of aspects based on their topic, they also ordered them in importance based on the data they consulted. In Figure 5.8, the results of their studies are summarized.

Ranking	Eva Limonard	Sander van Bodegraven	Derk van den Berkhof
1.	Color	Green (Yes)	Color and materialization (White)
2.	Way finding	Dimension (Wide)	Layout / Form (Organic)
3.	Light	Materializing (Light/Warm)	Green (Yes)
4.	Supervision	Art (Yes)	Lights (Warm)
5.	Human surveillance	Layout / Form (Curved)	Layout (Large dimensioned areas)
6.	Clear rules for parking	Roof (Open)	Colors and materialization (Warm)
7.	Combining functions		
8.	Camera surveillance		
9.	Materials		

Figure 5.8: Conclusions of the various graduation theses about atmosphere. The light grey aspect of Limonard's study are too specifically used for car parks and therefore not sufficient enough to influence the atmosphere in a shopping centre.

Only atmospheric aspects that can be displayed in an image are part of this study. Because Architecture and Atmosphere are in this case so closely interwoven, the two main attributes will be displayed in the same image on the vignette.

Keeping in mind that Atmosphere itself is 1/6 of the vignette, only a few of these aspects will be included in the image. Colour, material and shape are already part of the attribute 'Architecture'. Based on the researches 'Green', 'Light' and 'Decoration' will be used for the atmosphere in the vignette. Because most shopping centres try to use a combination of natural light and artificial light, the following list of aspects that will be added to add atmosphere in the image is:

1. Light (natural)
2. Light (artificial)
3. Green
4. Decoration

The three levels for atmosphere will be 'Low Atmosphere', 'Medium Atmosphere' and 'High Atmosphere'. Figure 5.7 gives an overview of these three levels. The 'Low' level indicates that there is less natural lightning and no artificial lighting, no green and no decoration. The level 'High Atmosphere' includes, high natural lighting, high artificial lighting, green and highlighted decoration. The 'Medium' level is the level exactly in between 'Low' and 'High' atmosphere

5.1.3 Parking

Parking was a rather uncomplicated attribute to classify into three attribute levels. The best possible parking option in Western Europe is 'free parking' in the shopping centre (Lilien-Carré) and the worst is 'no parking' (Entre Deux) in the shopping centre. The middle group is than automatically paid parking (Centrum Galerie). The only two blanks that needed to be determined are the price of the paid parking level and the design of the attribute.

Parking in Germany is cheaper compared to the Netherlands therefore an average of the parking price of Entre Deux (commercial parking in the city centre) and of Centrum Galerie was used for the price on the vignette. This resulted in a price of almost three Euros an hour. This resulted in the following three attribute levels for parking:

1. No parking (Entre Deux)
2. Paid parking: 3 € per hour (Centrum Galerie)
3. Free parking (Lilien-Carré)

5.1.4 Catering

Larger shopping centres often offer a variety of catering options. In the Netherlands, these options are often limited to cafes. According to [Interview 1, De Bont] there are three mainstream catering types used in Dutch shopping centres: Fast food (McDonalds, KFC), cafés+ (Starbucks, Dunkin Donuts) and restaurants (often self service but with more quality and variety as the fast food franchisees, an example is La Place). An overview of the three catering levels based on the database of Locatus is displayed in Figure 5.9. When analysing the catering in the three shopping centres, the three levels can be confirmed for both Entre Deux in the Netherlands and both the German shopping centres (Figure 5.10).

One of the most famous Dutch department stores, De Bijenkorf in Amsterdam, currently upgraded their food court. The focus is now more on quality food and beverages. A trend that is already familiar in larger department stores in Germany (KDW) and London (Harrods). Multi is currently working on a prestigious project in Rotterdam, although this is a shopping centre and not a department store, they are still searching for quality catering possibilities in the centre [Interview 4, Koeneman].

The three levels of catering in the DCA will therefore be based on these three mainstream catering possibilities:

4. 'Fast food',
5. 'Coffee and tea' ,
6. 'Restaurant'.

Attribute level	Fast food	Coffee and tea	Restaurant
Subgroup	Fast food Grillroom Delivery	Coffee house Cafe Ice cream	unchroom Cafe-restaurant Restaurant
Examples	McDonalds Burger King KFC	Starbucks Dunkin Donuts Coffee Company	La Place Gauchos

Figure 5.9: table shows the subgroups and examples of the attribute levels (www.locatusonline.com)

Entre deux	Lilien-Carré	Centrum galerie
Coffee (1) Restaurant (0) Fast food (1)	Fast food (1) Coffee (2) Restaurant (1)	Fast food (3) Coffee (6) Restaurant (2)

Figure 5.10: overview of the catering in the three centres

5.1.5 Travel time

Travel time to a shopping centre depends on the location of the consumer and the accessibility to the centre. Because in all analyses the shopping centres are located in the city centre the accessibility is comparable and accessibility will therefore not be part of the vignette. To determine the maximum travel time consumers are willing to travel for a proper day of shopping, the incremental attribute levels were based on the answers of the experts interviewed. All experts were asked as of how long they thought consumers at maximum were willing to travel to a shopping centre. This time will be the maximum realistic travel time. The other two levels will be 1/3 and 2/3 of the maximum realistic travel time. The answers of the expert interviews are displayed in Figure 5.11. The average maximum score is 45 minutes for the Dutch retail market and slightly more (51 minutes) for the German market. Based on this outcome the maximum travel time for both markets is set for 45 minutes. The second and third level will then be 30 minutes and 15 minutes, respectively.

Interview	Netherlands (minutes)	Germany (minutes)
1.	45	60
2.	60	60
3.	40	45
4.	45	45
5.	30	60
6.	45	45
7.	60	45
8.	35	45
9.	45	51
Average	45	51

Figure 5.11: Overview of the maximum realistic travel time according to the experts.

5.1.6 Size

The difficulty of designing a symbol for the attribute 'Size', is the fact that size can stand for different things. Size could be used to express the lettable floor space of the centre in square meters. However, this would not be a sufficient number for consumers to base their opinions on. Consumers are more interested in the retail program, 'which stores can be found in a shopping centre'. The size of the stores is according to the expert interviews of both this study and the study of Van den Berkhof [2008] of less importance.

The number of stores and the size of an inner city shopping centre are obviously correlated. Therefore, it was decided to display the number of stores, as this will be more informative to consumers. For most consumers, the number of stores is more easy to compare than for instance the area of the shopping centre in square meters. The number of stores used for the attribute levels will again be determined by the retail program of the three shopping centres.

Centrum Galerie Dresden (Large)

This shopping centre is with 62.000m² retail area, the largest shopping centre of the three analyzed centres. The retail program of the centre consists of 33 fashion stores, 10 food and catering stores, and 31 other stores. Together, there are 64 stores with an additional number of small kiosks and service stores. For the large attribute level of size will be displayed as 60 or more stores (>60 stores).

Lilien-Carré Wiesbaden (Medium)

For Western European standards, Lilien-Carré is with 26.000m² a medium sized shopping centre. In total, there are slightly more than 40 stores in the centre. The medium attribute level of size will be displayed as about 40 stores (±40 stores).

Entre Deux (Small)

Entre Deux is with 10.000m² the smallest of the three shopping centres. Excluding the catering facilities, the centre counts 22 stores. Based on this number and based on the previous two attribute levels, the level of this centre is set to less than 20 stores (<20 stores).

5.2 Design of the vignette

5.3 Symbol vignettes

The following paragraphs are about the design of the symbol vignettes.

5.3.1 Layout concept

A vital part of the time in this research project was spent on the overall layout of the vignette. The aim was to create a vignette resembling an information brochure of a real shopping centre. This was done in effort to improve the feeling that respondents were choosing for a genuine shopping centre. To accomplish this, a number of brochures were used as examples (Figure 5.12).

Because all attributes are equally important in a DCA, it was important to display each attribute as equivalent as possible. This resulted in three different drivers above each other on both sides. Because the main attributes Architecture and Atmosphere were combined, this image is about twice as large as the other attributes. For the text vignettes, the image of the architecture/atmosphere is the same size as in the symbol vignette. The other attributes were all equally displayed above each other.



Figure 5.12: Several shopping centre brochures where used as example for the vignette layout.

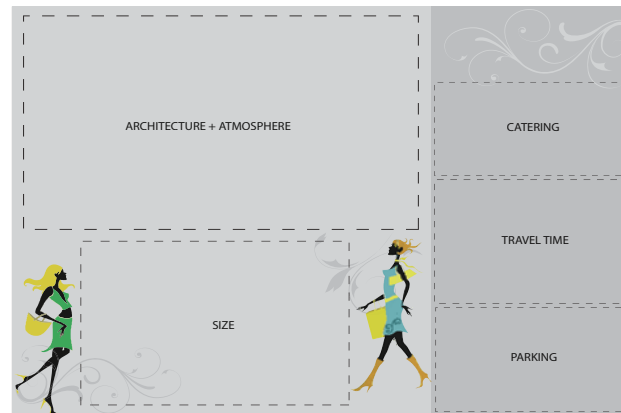


Figure 5.13: The symbol vignette layout.



Figure 5.14: A collage of several European shopping centres developed by Multi.

5.3.1 Architecture and Atmosphere

As mentioned before, a combined image of architecture and atmosphere was developed. Both attributes were as mentioned before closely interwoven and were therefore hard to display as two individual attributes. Both attributes consisted of three levels. This resulted in $3 \times 3 = 9$ unique images. Before the start of the design, a number of features were essential in order to succeed in combining both architecture and atmosphere.

First, it must be clear for the respondent that the image is representing a shopping centre.

Second, except for the changed features, the images should be as neutral and comparable as possible. The same basic design and angle of the shopping centre should focus the respondents on the attributes to judge. In other words, it makes the images too diverse, it would become unclear where the respondents would base their choice on. This would make the different images incomparable. Second, it should also be an imaginary shopping centre to filter feelings or experiences the respondents might have toward an existing centre or a city. For this reason only computer images were used, no real photos.

Third, the angle of the render has to be taken with great care. To add all the determined features from the architecture and the atmosphere the angle ought to give a good overview of the centre.

To show how the images were designed, a strip of images explains what was done, why this was done and what software was used.

- | | | |
|----|------------------------------------|---------------|
| 1. | The basic model | (Sketch-up) |
| 2. | The right angle | (Sketch-up) |
| 3. | The three levels of architecture | (Sketch-up) |
| 4. | The three levels of atmosphere | (Sketch-up) |
| | Raw renders | |
| 5. | Renders are perfected in Photoshop | (Photoshop) |
| | Final images for the vignette | |
| 6. | Layout on the vignette | (Illustrator) |

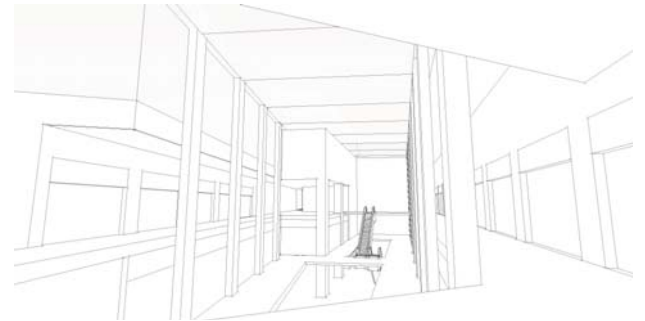
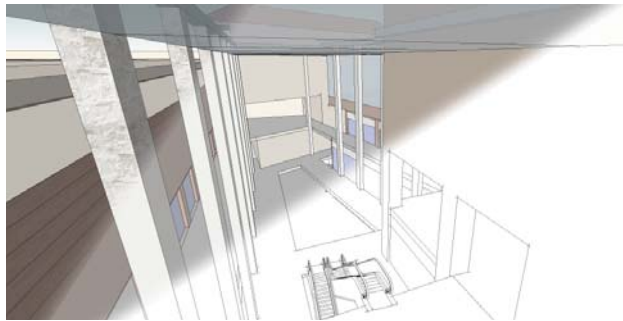


Figure 5.15a: Basic structure and materialisation of the model and finding the right angle (Sketch-up)

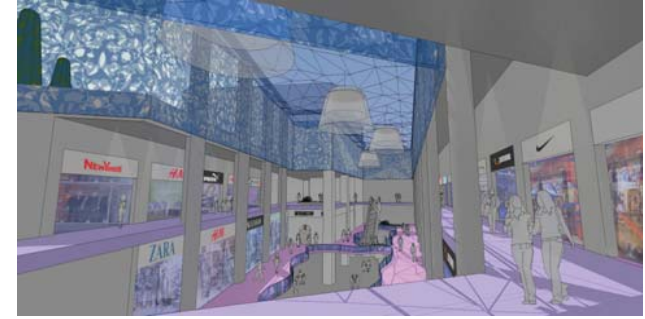
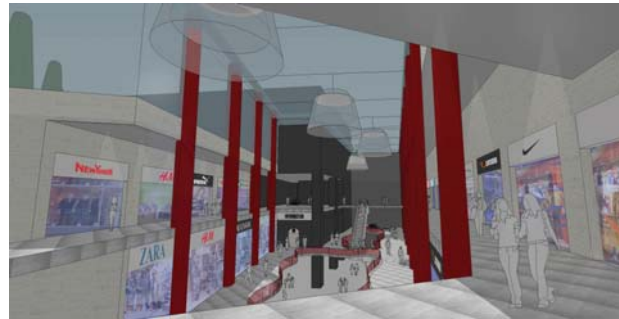


Figure 5.15b: Three levels of the attribute Architecture (Sketch-up)

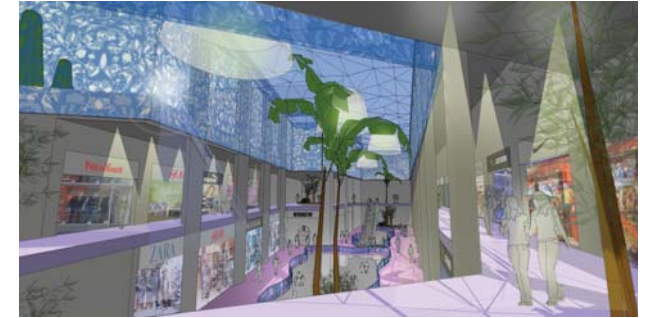
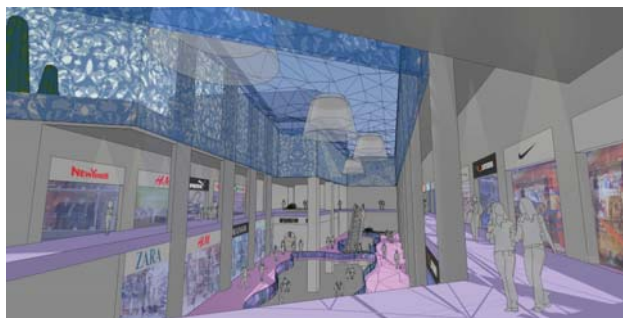
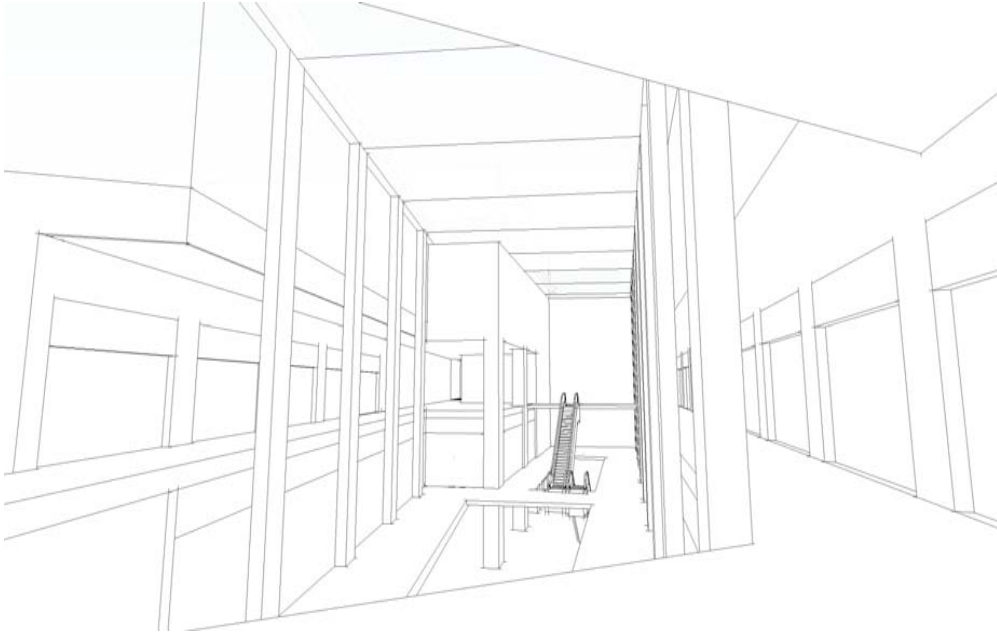
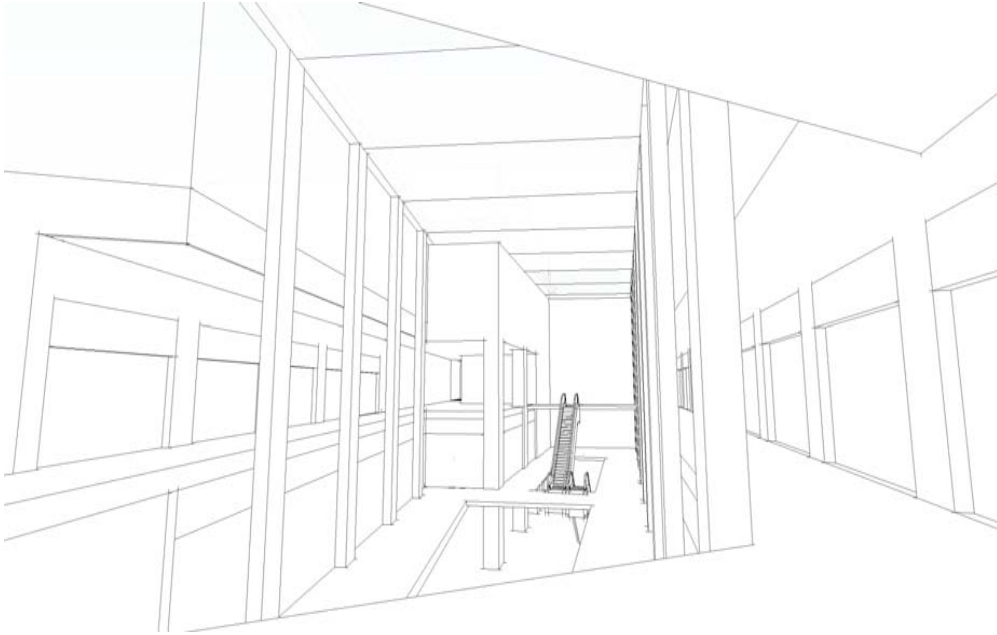


Figure 5.15c: Three levels of the attribute Atmosphere (Sketch-up and Adobe Photoshop)





±40 Stores

15 min

15 min

10 min

No Parking



<20 Stores

25 min

30 min

-- min

No Parking

Adobe® Photoshop® cs

Adobe® Illustrator® cs



Figure 5.16: Three dimensional parking sing.

5.3.2 Parking

The first idea was to include parking in the same image as architecture and atmosphere using a three dimensional sign hanging from the roof of the centre (Figure 5.16). In the final version of the vignette, parking is display as a two dimensional symbol. The symbol is still based on a realistic parking sign but is no longer in the same image as the architecture image. The reason was that according to the test panel, adding another attribute in the image made it hard to keep an overview of the main attributes. The final design of the 'Parking' attribute is displayed in Figure 5.17.



Figure 5.17: Overview of the three attribute levels for parking.

5.3.3 Catering

The levels are displayed by simple full colour symbols of the stereotype food one can buy in each category. Sodas, hamburgers and fries for 'Fast food'. Coffee, donuts and pie for 'Coffee and tea'. Whine and a chef's hat for 'Restaurant'. See Figure 5.18.



Figure 5.18: Overview of the three levels of catering.

5.3.4 Size

The first idea for displaying the size of the shopping centre was to show the logos of a variety of international brands. The logos would be displayed as an information pole in a real shopping centre. This would give the respondent a good idea of what to expect in the centre (Figure 5.19). At last, this idea was dropped for a variety of reasons. The first reason was that when adding a large number of different logos to the vignette, this would become too unclear due to an overkill of information. The second reason was that respondents would be distracted by their favourite brands when choosing for a shopping centre. Although it might be interesting information to study, it is not the aim of this research. Third, choosing the media to spread the survey could give copyright problems when using real logos. Finally, there was the problem of having different brands in different countries.

The plan to add the logos to an information pole in the architecture/atmosphere image was withdrawn for the same reasons parking was excluded from this image.

Finally, it was decided that the best way to show the size on the vignettes was by using basic images of the floor plan. It was thought to be important that the floor plans matched with the image of the architecture in order to make it as realistic as possible. For better understanding of the floor plans (also a result based on opinions of the test panel) the number of stores was added in text as well. To keep the plan as simple as possible only greyscale 'colours' were used (Figure 5.20)

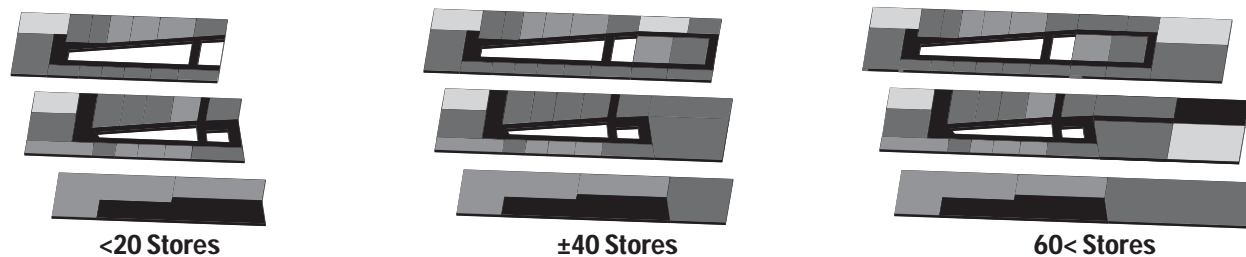


Figure 5.20: Overview of the three levels of size.



Figure 5.19: Logos of the different stores displayed as information pole.

5.3.5 Travel time

The three levels of 'Travel time' were 45 minutes, 30 minutes and 15 minutes. Because the mean of transport is different for the consumers, it was decided to show the three most important means of transport, car, public transport and bicycle. The times were adjusted in order to be realistically comparable to another. The colours red and green are used for a quicker understanding of the symbol.

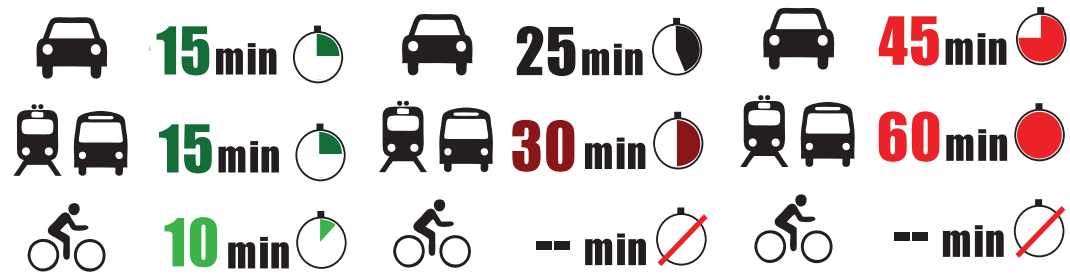


Figure 5.21: Overview of the three levels of travel time.

5.4 Text vignettes

The attributes 'Atmosphere' and 'Architecture' were similar displayed on both text and visual vignettes. There are two reasons for doing this. First, it was difficult to describe these two visual attributes in a way that all respondents would understand this in the same way. Writing 'conservative architecture' would mean little to an average respondent (test panel). So does 'medium atmosphere'. The test panel was unanimous about the significant small influence these attributes had on the choice of the responds when written in text.

The second reason was that keeping atmosphere and architecture the same on both kinds of vignettes, would allow one to study whether the same images would be judged differently when using a different layout.

The remaining attributes were described in the most simple form possible (Figure 5.22). The differences with the symbol vignettes is that for catering, real life examples were given and that the overall layout of the text vignette was in portrait whereas the symbol vignettes were in landscape.



Figure 5.22: Example of a text vignette.



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6 The Survey

This chapter will describe the structure of the survey approach of the respondents. based on the various hypotheses. It also goes into the



Figure 6.1: Radio 1 interviewing consumers in Shopping Centre Nootdorp and Shopping Centre Ypenburg

(<http://kassa.vara.nl/radio/afspeelpagina/fragment/hoe-ziet-het-perfecte-winkelcentrum-eruit/speel/1/>)

6.1 Respondents

At forehand, a strategy was made to find enough respondents for the survey. Because two different layouts were used, twice as many respondent were needed for the same statistical power (that is the ‘sensitivity’ of the questionnaire). Therefore, the aim was to get about 500 respondents. In order to reach a large number of respondents in a relative short period, the survey was conducted using the internet.

Due to the strict time schedule of the summer semester, this campaign was carefully planned before the design of the vignettes started. Apart from the large numbers of respondents, it was equally important to reach a wide range of respondents. The variety of respondents was needed for a realistic sample of real life shopping centre visitors [Interview 6, Reulink and Interview 9, Trimp].

Van den Berkhof (2008) found some evidence of cultural differences in consumer preferences for design related features. To study the influence of culture (here operationalized as nationality) on the choice of the consumer in Western Europe, the plan was to conduct the survey in the Netherlands, Belgium (Flemish only) and Germany. To reach the German respondents, the survey was fully translated in German.

Test

Before the formal start of the survey several concept versions were tested by a group of 31 respondents with different backgrounds (i.e. mentors, friends, students, colleges at Multi, family and some random respondents). The feedback of this test panel was used to improve the final version of the questionnaire.

To reach the Belgium and German consumers, several Multi shopping centres were asked to display a link to the survey in a banner on their shopping centre websites.

To trigger more respondents, respondents who completed the questionnaire could participate in a lottery an iPod shuffle. Based on a recommendation of Van den Berkhof [2008], a preset time limit of four minutes filtered out the respondents who only participated to win the iPod.

To obtain enough respondents, a media focused strategy was developed. Several news papers and magazine were selected finally resulting in an article in the SpitS, B-news, and the Shopping Centre News (SCN). The SpitS is a free public transport newspaper with around two million readers daily across the Netherlands. The SpitS article resulted in an interview with Radio 1 (VARA, Kassa, 200.000 listeners daily) and an article in the B-News. SCN is a monthly magazine for retail professionals. SCN was selected to test whether retail professionals would answer the questions in a different way than non-expert respondents. This was thought to be relevant, since the free

publication in the SpitS might have particularly attracted people who earn their living in retail. In the same period several other types of media were used to improve the number and the variation of the respondents. Popular social website like Facebook, Hyves, Studie-VZ (German Facebook) and Twitter were exploited (Figure 6.2). To reach more Belgium and German consumers, several Multi shopping centres were asked to place a banner with a link to the survey on their shopping centre websites.

The collage features several elements:

- Research and Media:** Logos for 'research', 'Editie NL', 'Binnenland 7', 'radio 1', and 'studieVZ'.
- Social Media:** Logos for 'LinkedIn', 'Hyves', and 'twitter'.
- Newspaper Clippings:**
 - 'Je wilt geen landingsbaangevoel' (You don't want a landing fee) from Binnenland 7, featuring a photo of a street scene.
 - 'WINKELN IS EEN GROOT ONBEWUST DING' (Shopping is a big unconscious thing) from Kassa magazine.
 - 'apomp opgeruimd' (blown away) from another newspaper.
- Website and Game Screenshots:**
 - A game interface titled 'ZOEK DE 10 VERSCHILLEN...' (Find the 10 differences...) with a score of 4/10 and a time of 11:55.
 - A screenshot of the 'Kassa' website with a search bar and navigation menu.
 - A screenshot of a radio broadcast interface for 'Radio Kassa'.
- Text and Graphics:**
 - A large blue Twitter bird logo.
 - A graphic with the text 'Een perfect winkelcentrum' (A perfect shopping centre) and 'Score: 4/10 Time: 11:55 Level: 01'.
 - A graphic with the text 'WINKELN IS EEN GROOT ONBEWUST DING'.
 - A graphic with the text 'The Perfect Shopping Centre'.
 - A graphic with the text 'Roemer helpt bij het vinden door een link naar zoek op de website te plaatsen'.

Figure 6.2: An overview of the different types of media used to reach as many different respondents as possible.

The list below sums up the different methods, media and websites used for spreading the survey.

1. SpitS (article, NL)
2. Radio 1 (interview, NL)
3. SCN (article, NL)
4. B-Nieuws (article, NL)
5. Multi Magazine (article, EU)
6. www.stadsfeestzaal.com (banner, B)
7. Technische Universität München (request, G)
8. Hogeschool Den Haag (request, NL)
9. www.hyves.nl (request, NL)
 - a. /winkelen = fun !!!!!
 - b. /winkel-en
10. www.studie-vz.de (request, G)
11. www.twitter.com (request, NL)
 - a. /#durftevragen
12. www.facebook.com (request, EU)
 - a. /I love shopping
 - b. /Shoppen in Antwerpen
 - c. /Forum Duisburg
 - d. /Forum Dresden
 - e. /Stadsfeestzaal
 - f. /Shoppen
 - g. /kmoet nog is gaan shoppen
 - h. /Shopping Stadsfeestzaal
13. Multi website (mentioning, EU)
14. BK City News (mentioning, NL)

In a period of one month, over 800 respondents clicked on the survey. The exact number of respondents is listed below.

Dutch survey

Survey date	30 days (22nd of March 2010 until 22nd of April 2010)
Target group	None
Method	Online survey
Total number of respondents	720
Finished surveys	526
Dutch respondents	562
Belgium respondents	11
Rest	22

German survey

Survey date	26 days (26th of March 2010 until 22nd of April 2010)
Target group	None
Method	Online survey
Total number of respondents	101
Finished surveys	68

6.2 The survey

The full Dutch and German questionnaires are displayed in Appendix 5 of this report. Both surveys are almost identical and consisted of the following parts:

- Introduction of the survey
- Part I: Background questions on the respondent
- Part II: Explanation Vignettes
- Part III: Vignette preferences of the respondent
- Part IV: Background questions regarding shopping preferences and consumer behaviour of the respondent
- Part V: Urban shopping landscape
- Closure of the survey

The next paragraphs cover the contents of the various questionnaire parts. The purpose of the questionnaire is to answer the three research questions. The research questions are based on the hypotheses, gained from literature and expert interviews.

Introduction of the survey

In the introduction, the respondent got explained in three steps about the general aim of the research, the possible price (iPod) and the expected time it would take.

Part I: Background questions about the respondent

In order to analyze the influence of characteristics of respondents the questionnaire started with the following demographical background questions. This part is to test the second hypothesis:

Consumer characteristics influences their choices for a shopping centre.

- Gender (Male / Female)
- Retail sector (Retail professional / Other)
- Age (<26 / 26-35, 36-45, 46-55, 56-65, 65<)
- Education (Low / Medium / High)
- Work (Studying / Working / Other)
- Family (Living alone / Living with others / Living with family or children)
- Income (Low / Medium / High)
- German (German / Dutch)
- Culture (Dutch / Other)

Part II: DCA

After completing part I, the respondent was asked about their preferences for shopping centres based on six different characteristics. As described in chapter 3, a Discrete Choice Model was used in order to obtain the most realistic answers of the respondent. This part was to test the first hypothesis:

- *H1 Shopping centre characteristics influence the consumers' choices (for a shopping centre).*

In the DCA the following attributes and levels were possible:

- | | | | | |
|----|---------------|--------------------|--------------------|------------------|
| 1. | Atmosphere: | Low atmosphere, | Medium atmosphere, | High atmosphere |
| 2. | Architecture: | Conservative, | Medium, | Modern |
| 3. | Parking: | No parking, | Paid parking, | Free parking |
| 4. | Catering: | Fast food, | Coffee and tea, | Restaurant |
| 5. | Travel time: | 15 minutes by car, | 30 minutes by car, | 45minutes by car |
| 6. | Size: | <20 stores, | +/- 40 stores, | >60 stores |

All respondents were asked to choose from a set of two vignettes the vignette with the shopping centre best adapted to their preferences (no third option was available). There were 12 of this kind of comparative questions in every survey.

One of the objectives of this master thesis is to optimize the research method used (chapter 1). To this end, this study experimented with the layout of the vignettes (chapter 3). The following hypothesis was hereby essential:

- *H4 The layout of the vignette is of influence on the choice of the respondents.*

The two layouts consisted of the same six attributes with the same three levels. The attributes Architecture and Atmosphere were equally displayed on the symbol and text vignettes. Every respondent either got the symbol vignettes or the text vignettes (no mix). The total of 144 unique vignettes (72 symbol and 72 text) were equally divided in 6 blocks of each 12 sets of two vignettes. Assignment to either of the six blocks was randomized. So every respondent had an even chance to judge the symbol vignettes or the text vignettes (Figure 6.3). To test for the difference between text and symbol vignettes, no extra information buttons were added to the vignettes. In Appendix 1, a number of text and symbol vignettes used in this survey are displayed. In the German survey only symbol vignettes were used.

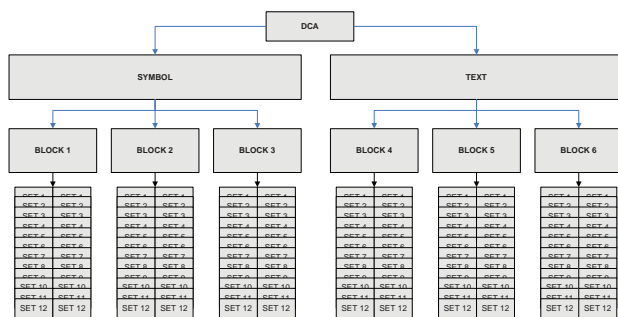


Figure 6.3: A overview how the text and symbol vignettes are divided. The blue arrows represent random steps made by the NetQ.

Part III: Feedback on vignette design

After completing the vignette parts, every respondent was shown an image of the symbol vignette and an image of the text vignette. Both images represent the same vignette but with a different layout. Based on these two images the respondents were asked which layout they found easier to understand. Secondly, the respondents were asked which layout they would have preferred for the survey and why they would have preferred the chosen layout.

This part is used to measure the preferences of the respondent towards the type of layout. Information, useful for future discrete choice surveys.

- Vignette clearness (Text / Symbol)
- Vignette preference (Text / Symbol)
- TekstSymbol* (Text / Symbol)

*This question was added to investigate whether the vignette layout had a relation with other questions in the survey.

Part IV: Background questions shopping preferences and behaviour of the respondent

The questions in this part are general questions about the shopping preferences and shopping behaviour of the respondent. Subsequently to the normal multiple-choice questions, the respondents were given a number of statements. For each statement, they could answer in what way agreed or disagreed with the statement.

The answers of these questions should for example determine whether someone generally likes or dislikes shopping; how long respondents are willing to travel; whether respondents always go to the same centre; whether respondents were likely to buy something unplanned, etc. Another purpose of this part was to test the fourth hypothesis. To test the difference with the DCA, respondents were asked directly to rank the six main attributes according to their preferences for an inner city shopping centre. All questions asked are listed below. This part was to test the following hypotheses:

- *H2 Consumer characteristics influences their choices for a shopping centre.*
- *H3 Consumers' shopping purpose influences their choices for a shopping centre.*

- Shopping preference (+ / +/- / -)
- Shopping behaviour (Target / Impulse)
- Travel time (<15min / 30 min / >45 min)
- Location (Always the same centre / Sometimes the same centre / Never the same centre)
- Transport (By foot / By bike / By car / By public transport)
- Ranking (Architecture / Atmosphere / Travel time / Parking / Size / Catering)

Part V: Urban shopping landscape

The final questions were about the urban landscape of a shopping centre. Both models were inspired by the pilot research between Shopping Centre Nootdorp and Shopping Centre Ypenburg in the first chapter. Three image-based questions were used to swiftly get an idea about the urban preferences of the respondents around the centre. More about this part of the research can be read in Appendix 1.

Closing of the survey

The final part of the survey was used to thank the respondents for their effort. Respondents could make remarks about the survey and had the chance to leave their email address if they liked to stay informed about the results of the survey or when they would like to engage in the iPod lottery.



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STATION BAGGAGE
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7 The Results

In this chapter, the results of the Dutch and the German online surveys are discussed. Based on the various hypothesis, the chapter goes into the following subjects: the descriptive statistics of the survey, the effect of vignette layout on the preferences of the

consumers, the outcome of the main attributes, the outcome of the attribute levels, the difference between direct and indirect measuring and the possible interaction effects of the consumer characteristics with the outcome of the discrete choice questions.

7.0 Intro

'Statistics is the science of collecting and comparing data and displaying them in tables or graphics' [Www.vandale.nl, June 2010].

One of the functions of the statistics is confronting theories and hypotheses with actual data [Goetgeluk, 2006]. Statistics deals with two different variants: descriptive statistics and inductive generalizations of statistics. The first section of the chapter briefly covers the descriptive statistics. The second part goes into the discrete choice questions. Descriptive statistics are limited to merely describing, organizing, and presenting data from a research group. Important aspects about the descriptive statistics are the frequencies and the comparisons (crosstabs). Notice that the function of this chapter is to show the results of the survey. The next chapter will give a reflection and recommendations towards the results.

- Descriptive statistics
- DCA main attributes and attribute levels
- DCA cross affects

Extra information about the following topics of the descriptive statistics are added to Appendix 1 of this report.

- General preferences towards shopping (Like / Dislike) and the general shopping behaviour (Impulse / Target)
- Preferences towards the vignette layout (Text / Symbol)
- Direct ranking of shopping centre characteristics
- Urban structure
- Relations in the answers of the Dutch and the German respondents
- Relations in the answers of retail professionals and the rest of the respondents

7.1 Descriptive statistics

The questionnaire was entirely conducted online. The advantage of using the internet is the possibility to reach a large group of respondents with relative ease in a short period. A negative effect is a lower response ratio.

The average time it took respondents to complete the survey was 17 minutes and 40 seconds. This time was calculated including three unrealistic long respondents who probably started the survey than did something else and later finished it again. With these respondents not included, the average time was 14 minutes and 11 seconds, which seems more realistic. Founded on recommendation of several other studies, the respondents who finished the survey in less than four minutes were excluded. This was done based on the fact that they could not have seriously read and answered all question. More likely, these respondents only made the survey to win the iPod.

From the 720 respondent that clicked on the Dutch survey, 529 have completed the survey. The total number of respondents could have probably be a lot higher if the SpitS had not forgotten to link the survey in their article. In Germany 68 of the 101 respondent finished the questionnaire.

Figure 7.1 gives an overview of the postal codes from the Dutch respondents. The majority (62%) of the respondents lived in the more crowded central and western part of the Netherlands (Randstad). The other 38% was spread out equally over the rest of the Netherlands.

Of the total number of respondent the ratio male (45%) and female (55%) is roughly equal. The youngest respondent was 12 and the oldest 86 years old. The average age of the respondents is 44 years, which is interesting, since this is close to the average age of the Dutch population (40 years [www.cbs.nl, June 2010]). Another interesting fact is that although the survey was conducted online, almost 35% of the respondents were older than 55.

Most respondent had completed higher education (46%). Higher education stands for higher professional education or university. From the remainder of the respondents (54%), one third has completed lower education and two third middle education. Because students have not yet completed a higher education, they are mostly part of the middle group.

Income, 25% low, 49% middle and 26% high, was strongly correlating with age and education. Because this question was not obliged, 30% of respondent chose not to answer. Another aspect logically correlating with age, is about the living circumstances (Family), current working status (Work) and Retail professional (determines if a respondent is working in the retail sector). All frequency diagrams were added in Appendix 4 of this report.

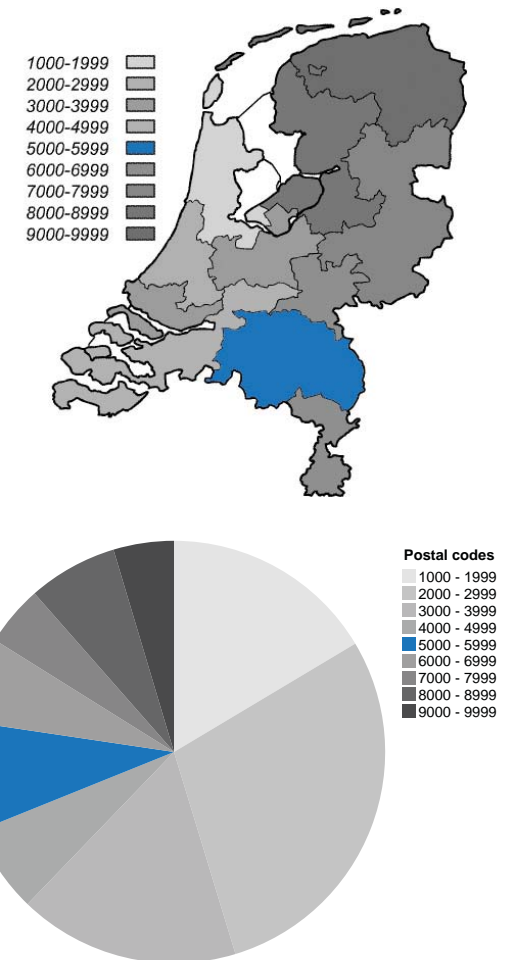


Figure 7.1: Overview postal codes of the Dutch respondents.

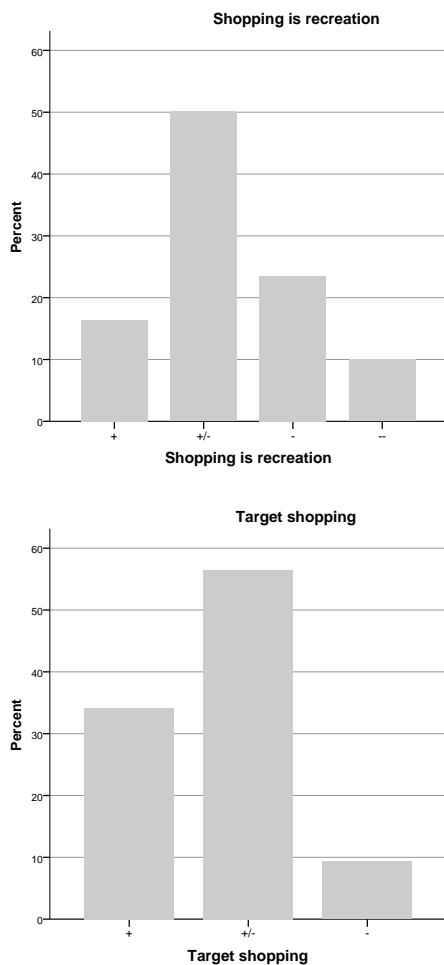


Figure 7.2: Frequency chart of 'shopping is recreation' and 'target shopping'

As for the questions determining whether respondents generally liked shopping, roughly half of all respondents answer neutral on the questions about their general opinion about shopping. The other half of respondents answered either positive or negative towards shopping. Within this group, two thirds answers negative and one third positive (Figure 7.2). For the question about whether consumers were target minded when visiting a shopping centre the majority answered neutral (55%), 35% answered positive and the other 10% said that they never planned their shopping at forehand (Figure 7.2).

As feedback for the vignette layout preference (symbol / text) the respondent were asked two questions after completing the DCA.

- Which layout do you find easier to understand?
- Which layout would you have preferred for the questionnaire?

The answers for these two questions were highly correlating ($X^2: 412.9$ df: 4 Sig: .001). This means that respondent who preferred one layout also found this layout easier to understand. From total number of respondents 54% preferred symbol vignettes, 41% the text vignettes and other 5% had no preference for the layout (Figure 7.3).

When compared to the other questions of the descriptive statistics, the only significant correlation was found between the Dutch and German respondents (Appendix 1). Age had no significant correlation for the preferences of the vignette, neither had the type of layout that was used in the DCA before the feedback questions.

7.2 Discrete Choice Analysis: Main effects

Following on the demographical information of the respondents, this paragraph is about the section where the respondents had to indicate their preferences that was developed using a DCA, subsequently analyzed with a multinomial logistic regression model in SAS 9.2.

To test theories, hypotheses are drawn. A hypothesis is in this case an assumption. These hypotheses are formed based on literature review and several expert interviews (chapter 2).

To be able to test hypotheses, there are 14.328 (598 completed surveys * 12 sets * 2 vignettes) observations from the discrete choice survey analyzed in SAS. The software program SAS can be used to test the main effects and the interaction effects. A main effect is the effect of an independent variable on a dependent variable averaging across the levels of any other independent variables. The term is frequently used in context of factorial designs to distinguish main effects from interaction effects [Steenkamp 1985]. An interaction effect is used to find a

relationship between attributes and attribute levels with for example one of the background questions. The discrete choice analysis estimates the utility, which measure the respondent's relative satisfaction that a respondent attaches to an attribute or an attribute level. With the multinomial regression model, it is tested whether the utility or satisfaction differs from zero.

Since the choice respondents made is a categorical variable (variable assessed on a nominal scale), the outcome can be negative. This does not mean that the choice behaviour of the respondent is affected negatively. In SAS, a self-chosen attribute level is set as reference category (zero-level). The height of the other levels will then be calculated relative to reference level that was set to zero, which might be either positive or negative.

For reliable conclusions to be drawn, it was decided to use a significance level of 5% work ($p \leq 0.05$) for the main effects of the attributes. This implies that, in 95% of the studies, the same utility for the relevant attribute is found. Based on this number can be concluded that the attribute is of influence is on vignette choice of the respondents.

To ensure that no random matches between the results of the interaction effects (main effect * background question) a significance level of 1% ($p \leq 0.01$) was used.

7.2.1 Review attributes

The chosen six attributes are expected to have an influence on the overall choice behaviour and thus are important in judging the vignettes (main effects). To test this, the following hypothesis was used:

H3: Shopping centre characteristics (in this thesis, the six main attributes used in the DCA) influence the consumers' choices for an inner city shopping centre.

H4: The layout of the vignette is of influences on the choice of the respondents.

The first step in analyzing the outcome of the discrete choice questions, was to see if the vignette presentation influenced the preferences of the consumers. The outcome showed that all four attributes that were displayed differently significantly affected the preference of the respondents. Based on this outcome, the hypothesis about the influence of presentation on the preferences of consumers in a discrete choice questionnaire was granted. After the survey, various respondents commented that the text in the text-vignettes was too dominant compared to the image.

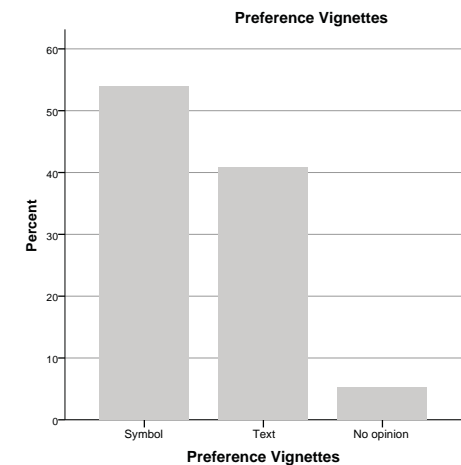


Figure 7.3: Frequency chart of the 'Vignette preference'



Figure 7.31: The two layouts used for this DCA. The two layouts were equally divided over the Dutch respondents. The German survey only used the symbol (under) vignettes.

- “I hardly looked at the images” (Wokke, Text),
- “I only focused on the text” (Minx, Text),
- “I found it difficult to concentrate on both the text and the images” (Willink, Text),
- “Due to the limited time I was willing to spend on surveys I filtered out the images” (De Zee, Text).

This resulted in the respondents basing their answers solely on the text of the four attributes, hence leaving out the attributes Architecture and Atmosphere. These comments were indeed granted by the outcome of the text vignettes. For example, Architecture did not significantly influence the choice of the respondents judging the text-vignettes, but did influence the choice of the respondents judging the symbol-vignettes. For this reason, further conclusions are completely based on the outcome of the symbol vignettes. These results are displayed in Figure 7.4. The next chapter goes in to a possible explanation about the influence of vignette layout on the preferences of the respondents.

Apart from indicating if an attribute influenced the preference of the respondents (Chi-square) the estimate column also shows the importance of each attribute. The parameter estimate indicates how much utility was given to an attribute. Travel time has the highest utility (0.77) and is therefore the most influential attribute when respondents make their choice of a shopping centre. Respondents also value parking (0.53) and size (0.36) high. Atmosphere (0.12) and Architecture (0.08) also affected their choices, but to a lesser degree than the former three attributes. Catering had no influence on the preferences of the respondents.

7.2.2 Review attribute levels

Having examined the utility of attributes as a whole, this section looks at the different attribute levels. As described before, in SAS, a level of an attribute is chosen as a reference category (zero-level) with the other levels measured relative to this reference level. Good average bad

As described in the fifth chapter, most attribute levels were selected based on three realistic levels (‘good’ ‘average’ ‘bad’) commonly present in shopping centres. To determine these levels three differing shopping centres were used as example for the levels.

Clearly, respondents prefer free parking (utility=1.46) or paid parking (utility=0.57) to no parking (reference set to 0). As might be expected, a shopping centre 15 minutes (utility=2.15) or 30 minutes (utility=1.05) away more appealing than a 45 minute drive (reference set to 0). Still, there are some unexpected results in the attribute levels. The most remarkable peak emerges in the Size of the shopping centre.

Having the smallest attribute level (<20 stores) set to 0, it was expected that the more stores, the higher the utility

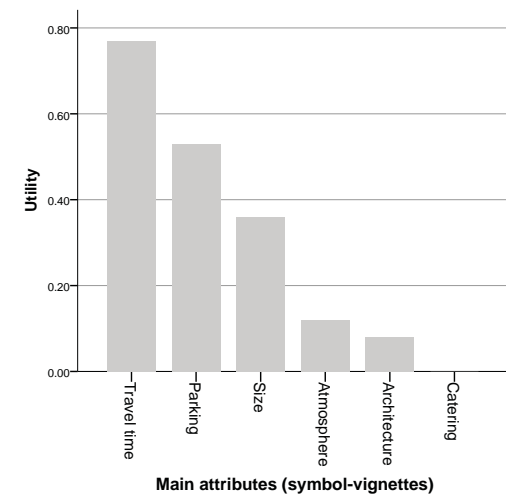
would be based on the literature used in chapter two and the expert interviews. Van Oss quotes that size does matter for a shopping centre [Interview 7, Van Oss]. The retail program has to be heterorganic, satisfying a wide range of potential consumers. It is better to have a little bit of everything than to have everything of one [Interview 1, De Bont]. Based on the statements one would expect that more stores would be favourable. However, the reverse appears to be true. As shown in Figure 7.5, the utility is positive (0.13) for middle-sized attribute level but strongly negative for the largest attribute level (-0.63). Since the smallest size was used as a reference level, this means that respondents perceived the smaller and middle sized shopping centres as more attractive than the larger sized shopping centres.

Since there was no sufficient literature to favour any attribute level of architecture, the conservative level was randomly chosen to be set to zero. However, it turned out that the medium level was considered less attractive (utility = -0.11), whereas the Modern variant was valued highest (utility = 0.09). Indeed, the difference between Classic and Medium was not large enough to be considered significant. The Classic level was inspired on the Entre Deux shopping centre in Maastricht, the medium as Lilien-Carré in Wiesbaden and the modern as Centrum Galerie in Dresden (chapter 5).

Atmosphere scored as expected. The low atmosphere level was set to 0. Although the medium level was slightly negative (-0.04). The high atmosphere level was ranked much better (utility = 0.37). Like in Architecture, the difference between Low atmosphere and Medium atmosphere was not large enough to be considered significant. This could have to do with the fact that both attributes were translated in the same image. All attribute levels are displayed in Figure 7.5.

Main Att.		Highest Att. Level		Middle Att. Level		Lowest Att. Level	
1. Travel time	0.77	15min by car	2.15	30min by car	1.05	45min by car	set to 0
2. Parking	0.53	Free parking	1.46	Paid parking	0.57	No parking	set to 0
3. Size	0.36	40 stores	0.13	20 stores	set to 0	60 stores	-0.63
4. Atmosphere	0.12	High	0.37	Medium	-	Low	set to 0
5. Architecture	0.08	Modern	0.09	Conservative	set to 0	Medium	-
Catering	-	Restaurant	-	Coffee & tea	-	Fast food	set to 0

Figure 7.5: Outcome of the attribute levels of the symbol vignettes



Symbol				
Parameter	Estimate	Stn. Err.	Chi-Sq.	P(Chisq)
Intercept	-3.42	0,17	428.65	<.01
Architect.	0.08	0.03	7.17	<.01
Atmosph.	0.12	0.03	14.41	<.01
Travel tm	0.77	0.03	558.27	<.01
Parking	0.53	0.03	276.35	<.01
Size	0.36	0.03	127.33	<.01
Catering	0.02	0.03	0.57	.45

Figure 7.4: Chart and table displaying the outcome of the main attributes based on the symbol-vignettes

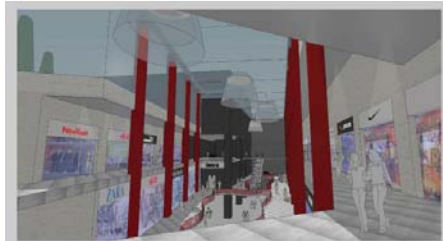


PARKEREN GRATIS
(Gratis parkeergelegenheid binnen 't winkelcentrum)

REISTIJD KORT
(Auto: 15 min / OV: 15 min / Fiets: 10 min)

WINKELAANBOD KLEIN
(Minder dan 20 verschillende winkels)

HORECA RESTAURANT
(Bijvoorbeeld La Place / Gauchos)



PARKEREN GEEN
(Geen directe parkeer mogelijkheden)

REISTIJD LANG
(Auto: 45 min / OV: 60 min / Fiets: -)

WINKELAANBOD GROOT
(Meer dan 60 verschillende winkels)

HORECA FASTFOOD
(Bijvoorbeeld MacDonald's en Pizza Hut)

Finally, like architecture the choice for setting the 0-level for catering was made randomly as the knowledge is still limited on this attribute [Interview 5, De Vries]. The results for catering show that both 'Coffee and tea' (utility=0.29) and 'Restaurant' (utility =0.31) were valued significantly higher than 'Fast food' (set to 0). Between these two groups is very little difference in utility and are therefore both ranked first.

7.2.3 Probability of Choice

The probability of choice, the chance that a vignette is chosen, means that the vignette is most preferred (i.e. is given the highest utility) by the respondents. The image with the lowest 'probability of choice' is the image that the respondents appreciate the least. The following illustrations show the vignettes with the highest and lowest chance of being selected. Due to the significant difference in outcome per layout, the results are shown per layout.



Figure 7.6: The best (left symbol, top text) and the worst choice for an inner city shopping centre according to the outcome of the discrete choice questions (notice that for catering which is affecting the choice of the text vignette respondents, the attribute levels 'Coffee & tea' and 'Restaurant' are highly valued over the attribute level 'Fast food')

7.3 Influence of respondents' characteristics

One of the three research questions of this study was to see how the consumers' characteristics would influence their choice for an inner city shopping centre. This research question will be tested based on the first hypothesis of the second chapter:

H1: Consumers' characteristics influence the choice of the consumer for an inner city shopping centre.

To study whether these background variables (consumer characteristics) like gender and age have influence on the given utility of the attributes, this part of the chapter looks into these possible interaction effects. To conclude whether a background variable has an effect, the observed interaction between the attribute level and the background variables should be significant. All interaction effects are tested with a significance level of 1% ($p \leq 0.01$) to avoid methodological problems with multiple testing. The following background variables were interaction with the attributes tested:

Demographical statistic (including nationality)

This was done based on the first hypothesis:

H1: Consumer characteristics influences their choices for a shopping centre.

Shopping preferences

This was done based on the second hypothesis:

H2: Consumers' shopping purpose influences their choices for a shopping centre.

Based on the literature studied in the second chapter, it is expected that some background variables influence the choice making behaviour of the respondents towards the six attributes of the DCA.

Architecture and Atmosphere

All background variables were tested for Architecture. Nevertheless, there were no significant interactions found for any of these background characteristics with either Architecture or Atmosphere (all interactions $p > 0.01$).

Travel Time

Travel time is according to the outcome of the main attributes, the most influential factor on the choice of a consumer. Are people who like shopping willing to travel a longer distance to a shopping centre? Do older and younger people who normally have more free time, value travel time differently? To test whether these and other

background demands have an influence on the utility of the Travel time, the interaction was tested in SAS. According to the outcome in SAS, respondents of the age of >35 (>26 is set to 0) value a short travel time (15 minutes by car) lower compared to respondents under 36 years of age (utility=-0.89). For the second level of Travel time (30 minutes by car) the group older than 55 gives a significant lower value (utility=-0.69). Another significantly influential background variable is Income (Low income (<20.000 €) is set to 0). When compared it shows that a medium income (20.000 - 40.000 € per household yearly) scores significantly lower on Short (utility=-0.42) and Medium Travel time (utility=-0.39).

Parking

From the direct ranking it was already clear that parking was evaluated differently according to age class. This might have to do with the fact that respondents under 18 are not allowed to drive and most students do not possess a car. Therefore, it is expected that the age will influence the preference for parking in an inner city shopping centre. According to the outcome in SAS, respondents of 26 years and older value as expected free parking significantly higher (utility=0.63) compared to the respondents under 26 years of age (this group was set to 0). The group of respondents aged between 54 and 65 years old, also values parking significantly higher compared to the rest of the respondents (utility=0.44).

Size

In comparison of, for example the influence of Age on valuation of Parking, it is hard to give an expectation about what would influence the size. Nevertheless, in the descriptive statistics a strong correlation was found between Age and Size. According to this correlation, respondents under 26 years old valued Size significantly higher compared to the other respondents. However, when compared to the outcome of the DCA, the only factor that influenced the preference for Travel time was Family type. According to the data, respondents living with family and respondents living with others both significantly value Medium (utility=-0.44) and Large (utility=-0.52) shopping centres lower than respondents who live alone (set to 0).

No effect was found between gender and any of the six main attributes.

7.3.1 Indirect versus direct ranking method

In the second chapter is assumed that respondent act differently in real life than they say they would act based on the fact that choice are often complicated and unclear to the consumer self. This is according to both Koeneman [Interview 4, Koeneman] and Carlson [2008] a major problem in most consumer researches. Based on this problem there is chosen for an indirect method, a Discrete Choice Analysis.

In the direct method, all respondent were asked to rank the six main attributes (Parking, atmosphere, Size, Travel time, Catering and Architecture) according to what they found most important for an inner city shopping centre. Hereby number one being the most important aspect and number six the least important. It was not possible to rank two items equally. The table in Figure 7.7 shows the outcome of both methods for the main attributes. Only Catering and Architecture are ranked almost equally in both research methods.

7.3.2 Shopping purpose

In the second chapter was suggested that shopping purpose could influence the respondents choice for an inner city shopping centre. This was tested based on the hypothesis that people who generally like shopping are more likely to be an hedonic shopper and vice versa (chapter 2). However, for these interactions with the main attributes no significant relation was found.

Rank	DCA	Direct
1.	Travel time	Size
2.	Parking	Atmosphere
3.	Size	Travel time
4.	Atmosphere	Parking
5.	Catering / Architecture	Catering
6.		Architecture

Figure 7.7: The table shows the different outcome of the direct question in the descriptive part of the survey and the outcome based on the utility given to each attribute by using the DCA.

7.4 Overall conclusions based on the outcomes of the DCA

Main attributes

The outcome showed that all four attributes that were displayed differently significantly affected the preference of the respondents. Based on this outcome, the hypothesis about the influence of presentation on the preferences of consumers in a discrete choice questionnaire was granted. Further conclusions are completely based on the outcome of the symbol vignettes. The attribute Catering did not affect the respondents choice. In the given order, the following five main attribute influenced the choices of the consumers:

1. Travel time
2. Parking
3. Size
4. Atmosphere
5. Architecture

Attribute levels

- The following conclusions can be drawn based on the outcomes of the attribute levels.
- The outcome of the attribute levels of Parking and Travel time were as expected. This meaning that for the attribute Parking, Free parking was favoured over Paid parking and Paid parking was favoured over No parking. As for Travel time, 15 minutes was favoured over 30 minutes and again 30 minutes was favoured over 45 minutes.
- The attribute level Size is quite surprising because the largest shopping centre (>60 stores) had the lowest utility.
- Architecture and Atmosphere score low in the DCA.
- The Modern variant of Architecture and the High Atmosphere level scored best in the DCA.

Indirect versus direct ranking method

Based on the hypothesis in paragraph (2.3), there was tested whether the research method would affect the answers of the respondent. Based on the results four of the six main attributes were ranked differently by the same respondents when asked direct compared to when asked in a DCA.

Influence of respondents' characteristics

There are no correlations found for any of the attribute levels of Architecture and Atmosphere when compared to the background questions of the respondents in SAS. For Travel time, both Age and Income influence the answers given in the DCA. Parking was significantly influenced by Age. The home environment of the respondent (e.g. living alone or living with children) influenced the attribute Size.

Gender had no effect on the preferences of the consumers.

Shopping purpose

Based on the hypothesis in chapter 2, there was tested whether the general shopping purpose and preference would affect the answers of the DCA. This to see whether hedonic shoppers would value a shopping centre differently compared to utilitarian shoppers. Nevertheless, no significant correlation was found.





Conclusions, Reflections & Recommendations

This chapter starts with reflecting the various literature and expert interviews. The second part conclusions of the previous chapters, using both ends with a list of recommendations.

8.1 Concluding and reflecting

8.1.1 Shopping centre

Travel time

Travel time is according to the DCA the most important characteristic. According to the expert interviewed this is the second most important aspect and when asked the respondent directly they rank this as third most important. Although the most experts interviewed considered that in modern times of mobility and competition consumers are willing to travel for 45 minutes in the Netherlands and even longer in Germany, the DCA shows that a short travel time is considerably the most influential attribute level with a positive influence on the choice for a shopping centre. Developers should therefore be aware when calculating the catchment area of a (new to develop) shopping centre.

The strong utility for Travel time could also have to do with the attribute levels. The maximum travel time of 45 minutes based on the answers given in the expert interviews might have been too high. For example, for a consumer who lives closer to Shopping Centre Ypenburg but still shops in Shopping Centre Nootdorp, the travel time is in this case probably not the most influential characteristic. However, for this comparison we are talking about 15 minutes instead of 10 minutes. Even consumers, who live in Delft and still visit Nootdorp, stay under the 30 minutes border. The set times on the vignettes are therefore perhaps too extreme. Further study could be conducted in specifying what would be the most acceptable travel time. This could be interesting to determine the exact catchment area of a shopping centre.

Another often in the media discussed topic that could have influence on the travel time consumers are willing to spend on their trip to a shopping centre, are the opening hours of the stores. Are consumers willing to travel longer when they know they have more time to shop? Insight in how this would affect consumers could help in the everlasting discussion between government and retailer about the opening hours of retail in city centres.

Parking

The second most important characteristic of a shopping centre is Parking. According to the expert this was the third most important and when asked to the respondents directly fourth most important. The relative low outcome of the respondents when asked directly is grounded by the research of Gianotten [2008] who used a direct ranking method and also concludes that parking loses in popularity. This is perhaps the best example of the problem described in the second chapter. People say/think that parking is not that important for them because (e.g. because it is bad for the environment, bad for my health, expensive, difficult to park) Nevertheless, act when it comes to shopping completely different and value a shopping centre with good parking facilities significantly higher. This could also have had a large influence in the success of Shopping Centre Nootdorp (free parking) in comparison

with Shopping Centre Ypenburg (paid parking). Still this is just a possible explanation. It could be said that for parking, experts have a better understanding of what the consumer want that the consumers self [Interview 7, Van Oss]. Free parking is rated with three times the utility of paid parking.

Size

Size is a remarkable outcome of the discrete choice questions. For both the experts and the respondents this was determined to be the most important characteristic. Still, size is a rather vague characteristic because in this case it was a combination of both the retail program (the stores in the centre) and the actual size of the stores in square meters (chapter 4). It was difficult to translate the characteristic into retail program (to much information on the vignette) or size (hard to translate for a respondent). Finally, there has been chosen to give a quantity of stores. In the symbol vignette, this was supported by a basic floor plan of the centre. The text vignettes the number of stores were supported by the word large, medium of small shopping centre.

Now there are two remarkable things about the outcome of the DCA. First, Size does not score as good as expected when compared to the expert interviews and the descriptive statistics. Secondly, when looking at these attribute levels, the lowest utility was given to the largest centre.

According to De Bont [Interview 1, De Bont], for inner city shopping centres, consumers value quality over quantity. Besides, the retail program has to be heterorganic, satisfying a wide range of potential consumers. “It is better to have a little bit of everything than to have everything of one bit”. Koeneman says that a shopping centre is always a mix of stores for familiarity and stores for curiosity, important is to find the right balance, adding more from the same will not improve the attractiveness of a shopping centre [Interview 4, Koeneman]. These two expert opinions might give an idea why respondent prefer small (less than 20 stores) and medium (around 40 stores) size shopping centres.

Atmosphere

Atmosphere scores less than expected when compared to the outcome of the direct questions. Atmosphere is hard to describe. In the descriptive statistics, the respondents rank this attribute as second most important. In both the expert interviews and in the DCA is ranked as fourth most important. In the descriptive statistics, Atmosphere is more important for the age group under 26 and above 65. Reflecting on unexpected low ranking of atmosphere, it could have been that the images were not clear enough and the levels not diverse enough.

Architecture

The characteristics that score low in all lists is Architecture. The low score for the attribute Architecture in the DCA is again equal to the opinions of the respondents and the experts. For architecture, the same recommendations can be made as for atmosphere. This characteristic was the most difficult attribute to design.

The modern architecture level, inspired by Centrum Galerie Dresden, scored significantly better. The fact that the Modern attribute level of Architecture is preferred over the other two levels could be founded in the colour used in this image. Crowley [1993] concludes in her research towards the impact of colour on shopping that blue and violet colours stimulate the consumers while reddish colours cause the exact opposite effect [Crowley, 1993]. This is in line with the outcome of this research, the low scoring Conservative and Medium architecture levels are dominated by brown and red while the high scoring Modern level is dominated by blue and violet colours. The theory is also founded by the work of Franz [2006], who studied the colour qualities of indoor environments.

Catering

Catering was not significantly affecting the preference of the respondents who judged the symbol vignettes. A reason for the low score of catering in inner city shopping centres is the competition of other catering facilities in the shopping centre in combination with the western European culture to use a shopping centre for shopping only [Interview 9, Trimp]. Notice that a shopping centre is not the same as a department store.

(A footnote for catering is that it was influencing the text-respondents. When looking at the utility level of the three catering variations of the text vignettes, fast food restaurants like McDonalds scores significantly lower compared to coffee bars like Starbucks or restaurants like La Place.)

8.1.2 Consumer

Age is the most influential consumer characteristic on the outcome of the DCA. Both the time willing to travel to a centre as the parking possibilities are influenced by the age of the respondent. For parking, the simple reason is most likely that in Germany and The Netherland you are not allowed to drive under 18 years old. From the age group between 18 and 25 years less than 2% owns their own car [www.cbs.nl, June 2010]. Younger respondents are therefore more likely to value parking lower compared to the rest of the respondents. For older respondent, public transport, walking or cycling might be a problem due to health issues. It is therefore likely that this group values parking higher compared to the rest of the respondents.

When reflecting the relation between Age and Travel time it is difficult to find a sound reason for the fact that respondents under 36 years old value a short travel time higher than older respondents. Neither is there a well founded explanation for the fact that respondent above 55 year old value a medium travel time significantly lower compared to the younger respondents.

Income also influences the travel time respondent were willing to spend on their trip to a shopping centre. Again there is no well founded explanation to explain why a medium income values short and medium travel time significantly lower compared to a low income.

The question about the current living situation of the respondent (I am currently living: alone / with others / with family (children)) significantly influenced the preference of the respondent towards the size of the centre. According to the data, respondents 'Living with family/children' and respondents 'Living with others' both significantly value Medium and Large shopping centres lower than respondents who 'Live alone'. Again there is no literature based explanation found for these diverse preference.

An unexpected outcome of the DCA, based on the answers given by the experts and the literature studied was Gender. Gender was according to Van Oss was the second most important characteristics that would influence the consumers' preferences.

In the second chapter the studies of Wiggins [2008], Wesley [2006] and Weiss [2003] all support the fact that gender influences the shopping preferences of the consumer. This research did not find any relation between Gender and all six main attributes. Also in the descriptive statistics, almost no effects were found when comparing the answers between men and women. Based on this could be concluded that male and female consumers in the Netherlands and Germany do not differently value the six attributes measured in this thesis. A reason suggested for the different outcome of this study compared to the studied literature could have to do with the sample used. When using an internet survey in 2010 the respondent of this study are an almost equal mix of men and women.

Mission: Go to Gap, Buy a Pair of Pants

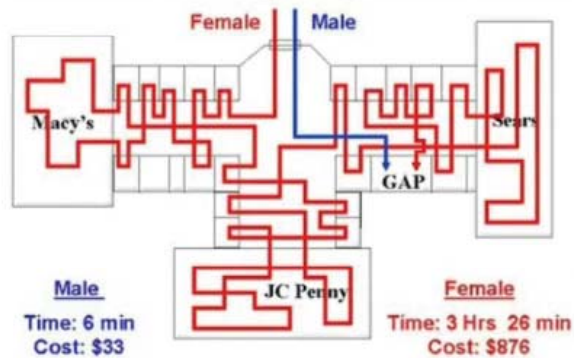


Figure 8.1: A stereotype joke about the differences in shopping between men and women. However based on the outcome of this research no significant differences were found and therefore the joke can be 'rejected' (Source: www.flogo.com).

On the other hand, when conducting a field research in a shopping centre throughout the week the respondent are more likely to be women, as in the Netherlands 46% of the women did not have a job in 2005 and 76% of the working women worked par time [www.cbs.nl, June 2010]. Basing your conclusions on this sample will influence your results towards gender.

Based on the various literature studies and expert interviews discussed in paragraph 2.1, there was expected that hedonic shoppers or utilitarian shopping behaviour would influence the preferences of the consumer. However, this hypothesis has lead to no significant correlations when tested to the attribute levels in the DCA. Reflecting on a possible explanation on this outcome, a possible reason could be something already discussed in paragraph 2.1, the method used for executing the survey. An effect of conducting the survey online was that respondent were not shopping at when they answered the questions (chapter 6). This could have flattened out the influence of hedonic and utilitarian shopping behaviour. The descriptive statistics of the previous chapter shows that the majority is neither hedonic nor utilitarian when conducting the survey. This large middle group probably resulted in non-correlation with the answers given in the DCA.

Although no relevant literature was found to form a hypothesis to test the difference between Dutch and German consumers, any significant relations found could have been interesting for retail professionals active in both countries. Nevertheless, the sample of German respondent was too small and not diverse enough to significantly conclude any differences. This does not mean that there are no differences. Further research could go into these two retail markets. Some differences found in the descriptive statistics can be found in Appendix 1.

8.1.3 Research methodology

As the improvement of the research mythology has been an equally important topic throughout the thesis, several observations have led to a number of conclusions and recommendations. Age and other background variable have shown to be of no influence on the preferences of vignette layout. Still the outcome of the discrete choice questions showed that layout did affect the preferences of the respondents.

The outcome showed that all four attributes that were displayed differently significantly affected the preference of the respondents. Based on this outcome, the hypothesis about the influence of presentation on the preferences of consumers in a discrete choice questionnaire was granted. After the survey, various respondents commented that the text in the text-vignettes was too dominant compared to the image.

As described in the pervious chapter, this resulted in the respondents basing their answers solely on the text of the four attributes, hence leaving out the attributes Architecture and Atmosphere. These comments were indeed granted by the outcome of the text vignettes. For example, Architecture did not significantly influence the choice of the respondents judging the text-vignettes, but did influence the choice of the respondents judging the symbol-vignettes. This was the reason, the outcome of the symbol vignettes were used for the results of this thesis.

A possible explanation for the different outcomes of the two vignette layouts can be found in the study of Adaval and Wyer [1998]. In this research towards the role of narratives in consumer information processing is concluded that text is for most people dominant over images when it comes to information processing. An explanation for this preference is found in the left and right side of the brain (left or right handed people). 99% of the people in The Netherlands are right-handed, and therefore for most respondent the text is dominant over images. This explains why in the combined Text vignettes, the attribute Architecture (displayed in an image) was no longer significant.

In the opening statement of this summary, Carlson mentioned that consumer research should focus on observed behaviour, rather than on expected or normative behaviour.

This study adds that the way preferences are assessed do make a difference as well. To better value Architectural and Atmospheric features of shopping centres other features might be better visualized to give these non verbal features a fair chance.

8.2 Recommendations

Based on the literature study, the expert interviews and the results of the discrete choice questions the following facets can be recommended:

- This research shows that text is dominant over images. To give all attributes an equal weight in the vignette, future studies should not combine image and text attributes in the same vignette. As for shopping centres, atmosphere and architecture are two influential characteristics for the consumers' choice. Because these are two characteristics that are hard to grasp in text, future studies on this topic should choose a image only vignette. This recommendation goes for all discrete choice studies testing non-verbal aspects.
- According to the interviews, consumers were willing to travel 45 minutes to an inner city shopping centre. Nevertheless, travel time appeared to be the most influential attribute on the consumer's choice of a certain shopping centre. Therefore, developers might have to reconsider this for determining the catchment area of a new shopping centre. Further studies can point out the exact amount of time respondents are willing to travel to a shopping centre.
- Another current issue that could influence the travel time consumers are willing to spend on their shopping trip could be the opening hour of the stores. Further studies could study what relation these two aspect have on another.
- Compared to the literature studies and the descriptive statistics, parking was ranked much lower compared to how they chose in the discrete choice questions. Developers should therefore be aware of nearby parking facilities in other shopping centres as this highly influences the consumers' choice.
- Although the size and program was generally ranked as most important characteristics in literature and interviews, based on the discrete choice question this is the third most influential characteristic. Besides that, consumers dislike large shopping centres. The developers' focus for an inner city shopping centre should therefore be on quality first.
- Atmosphere is difficult to fully translate in an image. Future discrete choice studies should therefore take the method a step further replacing the images by for example movie clips, sound effect and/or interactive three-dimensional models.
- For the catering options, quality is preferred. Coffee shops and restaurant like Starbucks and La Place are valued over fast food restaurants like McDonalds. Still, due to the low overall score for catering, developers should be careful when planning large catering facilities (food courts) in inner city shopping centres.

- As expected based on the literature, the colour blue, planting, light and decoration all positively influence the preference of the consumers in an inner city shopping centre. Designers and developers could implement this in order to improve the attractions of the centre.
- The phase of life (i.e. age, income, family) influences the consumers' preferences for an inner city shopping centre. When focusing on consumer groups, special attention should go out to these two groups. This could be done by for example adding recreation for children in harder rentable places in the centre.
- Although gender was based on the literature in paragraph 2.1 expected to be an influential characteristic, no significant relation was found based on the DCA. Based on this fact, developers should find an equal mix of male and female stores.
- Conducting a research over the internet is probably not a sufficient way to successfully research the effects of hedonic and utilitarian shopping behaviour on the preferences of the consumers. Field research can possibly better capture these behaviours as they are strongly influenced by the moment.
- The outcome of this research shows that the majority of the respondent is in general neither hedonic nor utilitarian. The influence of hedonic and utilitarian shopping might therefore not be as influential as written in the various literature studies described in paragraph 2.1.
- Different attributes are decided at different phase in the design process of a shopping centre. Parking is for example a characteristic determined in the very beginning of the process. There are many design driven elements of a shopping centre that become important in a later stage of the process. A recommendation for this method could be that researchers should separate the aspect that are decide at the start of the design process and aspects that are important in a later phase. This will make the outcome of the research of better use for the developer or designer.

To conclude...

To conclude, as this research was conducted within the Faculty of Architecture at Delft University of Technology, it is satisfactory that one of the main conclusions, proving that text is dominant over images can be beneficial for the faculty. Architects and urban planners but also advertisers and graphical designers, who are constantly working with non-verbal aspects in presentations and researches, can use this research in order to optimize the message they try to translate.

Epilogue

In een eerste gesprek met Roemer over een plek als afstudeerder bij Multi Vastgoed waren we het heel snel eens over een mogelijk onderwerp. Dat was voor ons beiden zowel ingegeven door een professionele overweging als persoonlijke belangstelling. Een mooi begin voor wat uiteindelijk tot een samenwerking en betrokkenheid bij elkaars werk van ca. driekwart jaar heeft geleid.

De vraag hoe consumenten onderdelen van een winkelconcept en vormgevingselementen in de winkelomgeving ervaren, wordt vaak gesteld maar zelden op basis van onderzoek beantwoord. Het zijn veelal opinies en persoonlijk getinte waarnemingen die leiden tot conclusies die vervolgens in plan- en ontwerpbeslissingen terechtkomen. Op basis van professionaliteit en ervaring gaat dat heel vaak goed: maar de vraag blijft of het niet beter kan. Dat vergt onderzoek naar de invloed van deze onderdelen en elementen. En dat vergt ook een passende vorm van informatieoverdracht die effect sorteert bij degene die ontwerpt en die planbeslissingen neemt.

Een wetenschappelijk onderzoek uit te voeren in de schoot van een bedrijf dat heel sterk door de praktijk en de dagelijkse gang van zaken wordt geleid, heeft 2 kanten. Het lijkt niet makkelijk zo'n theoretische klus te klaren tussen mensen die extreem praktisch gericht zijn. Tegelijk biedt die praktijk geweldige mogelijkheden om boven op de realiteit te zitten, direct de gevolgen van handelen te zien en in contact te zijn met mensen die op basis van hun expertise en ervaring beslissingen nemen.

Roemer heeft voor het empirisch deel van zijn onderzoek gebruik gemaakt van een methode met vignetten. Dit is een vorm van presentatie van conceptonderdelen en vormgevingselementen aan respondenten waarmee bezwaren van andere onderzoeksmethodes worden ondervangen. Deze methode is betrekkelijk nieuw en nog niet volledig uitontwikkeld. Hierdoor was Roemer in staat om op 2 niveaus conclusies te trekken: zowel over de methode zelf als over een aantal inhoudelijke thema's inzake concept en ontwerp.

De resultaten maken nieuwsgierig naar meer. Natuurlijk wordt veel praktijk bevestigd; maar er zijn ook uitkomsten die staande praktijk ter discussie stellen; of op zijn minst tot nadenken stemmen. Het gevoel is dat deze onderzoeksmethode tot goede resultaten kan leiden die een zinvolle weg in de plan- en ontwerppraktijk kunnen vinden. Er zijn waardevolle indicaties boven water gekomen voor perfectionering van de methode; en ook is er een beter gevoel ontstaan voor selectie en afbakening van kenmerken (attributen) die nader onderzocht kunnen worden.

Voor een bedrijf als Multi zit de waarde van een afstudeerder 'in-huis' niet alleen in de uitkomsten van het onderzoek maar ook in de spiegel die wordt voorgehouden. Iemand met de communicatieve eigenschappen om zich een eigen weg door het bedrijf te banen, is een verrijking voor de dagelijkse praktijk. Roemer heeft ons, praktijkmensen, gedwongen na te denken over het 'wat, hoe en waarom' van ons handelen. Dat heeft niet alleen hem en zijn onderzoek geholpen, maar is ook van waarde geweest voor onszelf en onze praktijk.

Naast deze inhoudelijke waardering, past hier ook nog een meer op de persoon gericht oordeel. Roemer heeft zijn werk met enorme toewijding gedaan. Naadloos passend in de orde en cultuur van het bedrijf heeft hij met enorme vasthoudendheid doorgezet. Met een hoge mate van zelfstandigheid en heel makkelijk schrijvend is hij moeiteloos en doelgericht naar zijn eindrapport doorgestoomd. En ondertussen was Roemer ook die ideale collega die als persoon en qua collegialiteit indruk heeft gemaakt en die tussendoor ook nog klusjes van collega's overnam.

Multi Vastgoed
Drs.ing. Arno G.N. Ruigrok
adjunct directeur

Dutch summary

Voor het succes van een winkelcentrum is het voor ontwikkelaars en architecten belangrijk een duidelijk beeld te hebben van de eisen en voorkeuren van de consument. Door de grote keuze die consumenten hebben is vertalen van deze voorkeuren is essentieel voor het slagen van het centrum. De moeilijkheid bij het meten van consumentenvoorkeuren is dat vaak niet de voorkeur maar het ideaal gemeten wordt. Het kan misleidend zijn om aannames te doen op basis van deze idealen. Bij dit onderzoek wordt gekeken naar de voorkeuren van de consument ten opzichte van binnenstedelijke winkelcentra in Nederland. Voorkeuren worden vertaald in de keuzes die de consument maakt. Het meten van deze keuzes kan daarom een inzicht geven wat een consument belangrijk vindt.

De moeilijkheid bij het meten van keuzes heeft met te maken met verschillende aspecten. Zo wordt een keuze gemaakt op basis van een combinatie van factoren. Bij het bestellen van een pizza zijn dit bijvoorbeeld, prijs, menu en bezorgtijd. Daarnaast wordt een keuze vaak gemaakt op basis van verstand en gevoel. Gevoel is hierbij vaak moeilijk uit te leggen. Verder kunnen mensen vanuit verschillende redenen strategisch antwoorden. Door deze factoren is er in dit onderzoek gebruik gemaakt van een de indirecte 'stated preference' onderzoeksmethode. De data worden hier op een indirecte manier verkregen. Hierbinnen is de discrete choice methode het meest geschikt om het keuzegedrag van de respondenten voor binnenstedelijke winkelcentra te onderzoeken. Een respondent moet elke keer aangeven welke geschetste hypothetische situatie de voorkeur krijgt boven het alternatief. Deze hypothetische situaties worden ook wel vignetten genoemd. Op het vignet variëren elke keer een aantal kenmerken (niveaus) van vormgevingaspecten (attributen). Een groot voordeel van deze 'vignettenmethode' is dat er een echt keuzemoment is. Omdat er veel verschillende attributen meegenomen moeten worden, is een fractional factorial design (hierbij wordt maar een aantal van het totaal aan mogelijkheden voorgelegd) noodzakelijk. Door middel van interviews met de verschillende belanghebbende partijen en een literatuurstudie zijn de belangrijkste zes winkelcentrum eigenschappen (attributen) die invloed hebben op de keuze van de consument bepaald. Dit zijn: Architectuur, Grootte, Horeca, Parkeren, Reistijd en Sfeer. Alle attributen worden op het vignet gevarieerd in drie niveaus (Figuur 1).

Een belangrijk aandachtspunt van deze studie was om te onderzoeken hoe het oprationaliseren van deze attributen van invloed was op het de beoordeling van de consument. Attributen als architectuur en sfeer zijn niet goed in tekst uit te beelden. Het is daarom voor toekomstige studies van belang om een beter inzicht te krijgen wat dit voor effect heeft op de beoordeling. Om dit te kunnen meten is er voor elk vignet zowel een tekst- als een symbool- layout ontworpen (Figuur 2).

Main Att.	Att. Level 1	Att. Level 2	Att. Level 3
Architecture	Conservative	Medium	Modern
Atmosphere	Low	Medium	High
Catering	Fast food	Coffee & tea	Restaurant
Parking	No parking	Paid parking	Free parking
Size	<20 stores	±40 stores	>60 stores
Travel time	45min by car	30min by car	15min by car

Figuur 1: De zes attributen met elk drie niveaus.



Figure 2: Voorbeeld van een Text-vignet (boven) en een Symbool-vignet. Beide vignetten geven dezelfde niveaus aan.

In het onderzoek zijn 597 respondenten uit Nederland (529) en Duitsland in een online enquête naar hun voorkeuren gevraagd. Elke respondent kreeg volgens willekeur de symboolvignetten of de tekstvignetten. Door alle respondenten 12 keer te laten kiezen uit telkens een set van twee vignetten is het met SAS mogelijk om de voorkeur (utiliteit) van zowel de attributen als van de niveaus te berekenen. Naast de vignetten zijn in deze enquête ook achtergrondvragen en stellingen opgenomen.

Bij het analyseren van de resultaten is eerst gekeken naar de invloed van de lay-out op de voorkeuren van de respondenten. Hierover kan met een significantie niveau van 5% geconcludeerd worden dat lay-out invloed heeft op het beoordelen van de vignetten. De symboolvignetten gaven hierbij de meest realistische vertaling van de voorkeuren van de respondent.

In figuur 3 zijn de resultaten van zowel de attributen als van de niveaus weergegeven. De waarden in de tabel zijn relatief. Dit betekent dat ze een gedeeltelijke invloed hebben op de keuzes die door de respondenten gemaakt zijn bij de vignettekeuze. De resultaten laten zien dat de respondenten veel waarde hechtten aan reistijd, parkeren en grootte. Ook speelden de attributen sfeer en architectuur mee in de beoordeling. Horeca had geen invloed op de keuze van de respondent.

Op basis van de achtergrond vragen kon worden geconcludeerd dat leeftijd, inkomen en gezinssamenstelling invloed hadden op de voorkeuren van de respondenten.

Attribuut		Beste Niveau		Middelste Niveau		Slechtste Niveau	
1. Reistijd	0.77	15min met de auto	2.15	30min met de auto	1.05	45min met de auto	set to 0
2. Parkeren	0.53	Gratis parkeren	1.46	Betaald parkeren	0.57	Geen parkeren	set to 0
3. Grootte	0.36	40 winkels	0.13	20 winkels	set to 0	60 winkels	-0.63
4. Sfeer	0.12	Veel	0.37	Gemiddeld	-	Laag	set to 0
5. Architectuur	0.08	Modern	0.09	Conservatief	set to 0	Gemiddeld	-
Horeca	-	Restaurant	-	Coffee & tea	-	Fast food	set to 0

Figuur 3: De uitkomsten in utiliteit van de attributen en van de niveaus.

Op basis van het literatuuronderzoek, de interviews en de uitkomsten van het vignettenonderzoek zijn een aantal aanbevelingen te doen:

- Uit het onderzoek is gebleken dat tekst een dominante werking heeft over afbeeldingen. Om elk attribuut gelijke aandacht te geven op het vignet zal moeten worden gekozen voor of alleen tekst of allen afbeeldingen. Omdat bij het beoordelen van winkelcentra aspecten als architectuur en sfeer van belang zijn op de keuze van de consument en omdat deze aspecten niet goed in tekst zijn uit te drukken, zullen toekomstige studies naar deze attributen gebruik moeten maken van slechts afbeeldingen zonder tekst.
- Consumenten geven hun voorkeur aan kleine (minder dan 20 winkels) en middelgrote centra (ongeveer 40 winkels). Dit is in contrast met zowel de literatuurstudie als de interviews die aangaven dat grootte de belangrijkste eigenschap zou zijn. Ontwikkelaars kunnen op basis van deze uitkomst zich beter focussen op kwaliteit dan op kwantiteit.
- Horeca heeft geen invloed op het kiezen van een winkelcentrum door de consument. Om horeca in een binnenstedelijk winkelcentrum te laten slagen moet er goed nagedacht worden hoe er iets nieuws aan de binnenstad kan worden toegevoegd.
- Parkeren wordt door de consumenten als belangrijker beoordeeld dan werd verwacht op basis van de literatuurstudie. Voor ontwikkelaars is het belangrijk om te weten wat de parkeermogelijkheden in omliggende centra zijn omdat dit doorslaggevend is voor de keuze van de consument.
- Bij het inspelen op de doelgroep kunnen ontwikkelaars het beste naar de levensfase van de consument kijken, wat in tegenstelling tot geslacht wel invloed heeft op een de voorkeuren van de consument.
- Omdat het aspect sfeer veel verder gaat dan wat er in een afbeelding uit te beelden is, kan er een sprong gemaakt worden met de onderzoeksmethode. Zo zouden de vignetten uitgebeeld kunnen worden in computer animaties met bijvoorbeeld geluid.

The bridge between research and practice

This additional part of the research is requested by the graduation company, Multi Development. The question was to write a paragraph about the relevance of consumer research, the topic of this thesis, for an experienced developer like Multi Development. Doing this could help bridging the link between research and practice.

Ruigrok (2007) wrote an article, pointing out that there is a lack of empirical knowledge toward consumer preferences in the Dutch retail sector. To explain his doubt, Ruigrok gave the following two reasons; First, the professionals in the retail developing market are almost all Caucasian, high educated, generally male and well earning professionals. This group represents only a small part of the society and can therefore not be seen as a good example of the average consumer. Secondly, according to Ruigrok, there is a lack of empirical research done on consumer choices. Most knowledge about the Dutch retail market comes from expert interviews, repeating the same knowledge. Visions that are not based on research, but on experience. To demonstrate how difficult it is to get a good insight in the consumer, an experiment was done with a group of retail professionals. The assignment was for the professionals to visit a shopping centre pretending they were a, at forehand well-defined, consumer. Ruigrok, perfectly representing the Caucasian, well earning male and highly educated developer group, now had to pretend he was a 48-year-old Muslim woman, with a small budget, little knowledge of the Dutch language and who came with public transport. What were the preferences of this woman, a consumer of any shopping centre in the Netherlands? Ruigrok and the others could not tell.

To bridge this gap between research and practice, Multi Development uses studies like these to improve their knowledge about consumer preferences from another point of view. To study the additional value of this thesis a presentation and discussion were organised with three of the key figures of Multi Netherlands.

1. Reulink, Richard director commerce, Multi Netherlands
2. Ruigrok, Arno director concepts and research, Multi Netherlands
3. Vink, Heino director commerce, Multi Netherlands

The intention of the presentation was to present the backgrounds and results of the thesis. The aim of the discussion was to answer the question at the start of this paragraph. The complete discussion is added to Appendix 2.

The value of consumer research for Multi

Consumer research is a tool to improve the success of a shopping centre. The outcome, based on statistical data can be used by developers, making decisions in the design phase of a shopping centre. However integrating these facts does not necessarily lead to the blue print of a 'perfect' shopping centre as there is no definition for a perfect shopping centre. For example, although parking is the second most important attribute, no one wants a city centre to be full of cars, as this would spoil the environment that makes city centres attractive.

Interesting about the discussion was therefore not primarily if the conclusions were right or wrong, but rather how this triggered to discuss, reconsider and think about the various topics. Reulink said afterwards, I often wanted to disagree with the results but deep inside I knew they were somehow very true. The danger developing the best locations is the fact that the location is for 90% responsible of the success of the centre. Now that we are working with more difficult locations, we should absolutely adjust our visions and experiences. New angles and visions from the perspective of the consumers will help.

Vink said that not all conclusions are relevant as every project is unique in itself. Still, these conclusions are very valuable, as they stimulate to keep thinking how a successful project can be made. To be a good developer, you need vision and optimism but always in the right ratio with realism. To keep projects realistic it is good to have feedback from an other, but very valuable perspective; from the future consumers.

Ruigrok commented that the reason it is impossible to link results of consumer research directly to a design, has to do with, the various games of chess that are played when developing a shopping centre. On every chessboard, you are playing a different opponent (Figure 4). The consumers are one of the components and therefore you have to make concessions. For example, in this research respondent prefer the colour blue over the colour brown and red (chessboard one). In practice the retailer might prefer the colour red (chessboard 2). In this case we probably value the retailers' preference over the consumers' preference. This is why the outcome of this or any other consumer research is never the whole truth. Nevertheless, the research is valuable for a company like Multi. Research triggers us to think and to discuss. By doing this we improve our vision, it keeps us sharp and sometimes stops us instead of ever going the same road we think we know so well.

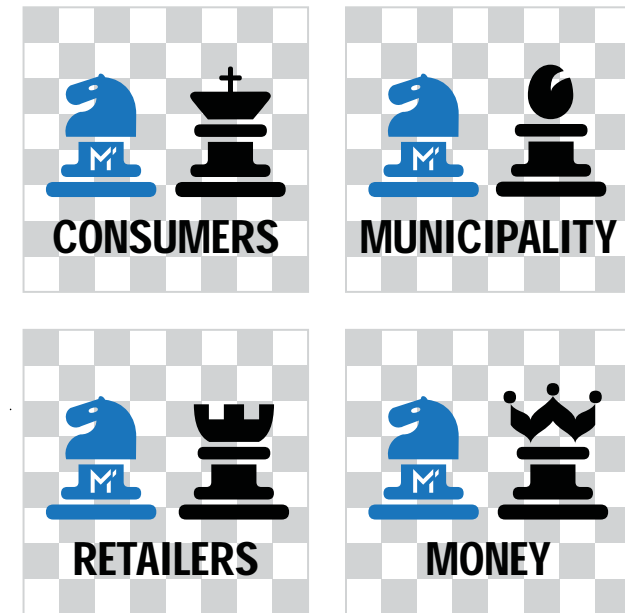


Figure 4: Various actors influence the choices made by the developer. Consumers are one them.

Glossary

(Research) Methodology	A set or system of methods, principles, and rules for regulating a given discipline, as in the arts or sciences
Adobe (Photoshop/Illustrator)	Graphics editing programs
Attribute (main attribute / attribute level)	See 'Vignette'
Consumer	Person who acquires goods and services for his or her own personal needs
Consumer characteristics	General aspects of consumers, used to describe and compare consumers
Consumer choices	Consumer choice applies in this case to what the consumer prefers. According to the dictionary the verb to prefer means; "to set or hold before or above other persons or things in estimation; like better; choose rather than"
Consumer demographics	The statistical data of consumers, esp. those showing average age, income, education, etc.
Correlation	The degree to which two or more attributes or measurements on the same group of elements show a tendency to vary together
Department store	Single large retail store carrying a wide variety of merchandise and organized into various departments for sales and administrative purposes
Discrete choice analysis (DCA)	Research method used to measure consumer preferences
Hedonic shopper	Recreation-oriented consumers, also referred to as fun shoppers or hedonic shopping behaviour

Inner city shopping centre	Shopping centre as a part of an existing retail area located in the city centre
NetQuestionnaire (NetQ)	Online survey program
Retail	The sale of goods or merchandise from a fixed location, in small or individual lots for direct consumption by the purchaser
SAS	Statistical software program used for the discrete choice analysis
Shopping centre characteristics	General aspects of a shopping centre, used to describe and compare the centre (i.e. size, retail program etc.)
Shopping centre	Retail centre that is developed at once, with a minimum user area of 2.500 m ² and a minimum of three independent stores
Shopping purpose	The goal consumers have while shopping (i.e. hedonic or utilitarian)
Significance	A result is called statistically significant if it is unlikely to have occurred by chance
Sketch-up	3D modeling program used to design the main attributes Architectures and Atmosphere on the vignettes
SPSS	Statistical software program used for the descriptive statistics
Utilitarian shopper	Efficiency-oriented consumers, also referred to as run shoppers or utilitarian shopping behaviour
Vignette	A short subscription of an illusory situation or representation that contains relevant information represented to the respondent. A vignette consists of a combination of alternatives (main attributes). On the vignette, every driver is optioned for two or more attribute levels. By changing the levels for the drivers, different representations (products) are created.

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Aerjen Koeneman	04-12-2009, Gouda	Project Developer	Multi (NL)
Willem-Joost de Vries	04-12-2009, Gouda	Partner Architect	T+T (EU)
Richard Reulink	21-01-2010, Gouda	Director commerce/former T+T	Multi (NL)
Sander van Oss	21-01-2010, Gouda	Project Developer	Multi (NL)
Heino Vink	25-01-2010, Gouda	Director commerce	Multi (NL)
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Appendix (CD)

- 1 Descriptive statistics
 - 2 Expert interviews and reflections
 - 3 Vignette examples
 - 3.1 Symbol
 - 3.2 Text
 - 4 Frequencies and crosstabs survey questions
 - 4.1 Dutch frequencies
 - 4.2 German frequencies (only students)
 - 4.4 German/Dutch crosstabs (only students)
 - 5 The online survey
 - 5.1 Dutch version
 - 5.2 German version
- Extra: P5 Report, P2 Report, P4 Presentation, Dutch crosstabs, Radio 1 item (audio), articles: SpitS, SCN, Multi Magazine and BK-Nieuws