Eindhoven University of Technology

MASTER

Sense of place

attachement to, identity with and dependence of shopping locations

Boerebach, J.J.

Award date:
2012

Link to publication

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Eindhoven University of Technology
Redevco B.V.
November, 2012

Colophon

Title
Sense of place: attachment to, identity with and dependence of shopping locations

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Student number
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Course
Master thesis – 7UU37

Study
Eindhoven University of Technology
Architecture, Building and Planning
Real Estate Management and Development

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Date
November, 2012

Figure cover
Stokstraat, Maastricht

Preface

This report is the result of my graduation research for the master Real Estate Management and Development at the Eindhoven University of Technology. The master is part of the Architecture, Building and Planning educational program at the Built Environment faculty.

The subject for this research (sense of place in shopping locations) is related to the paper written by the Taskforce Consumentenbeleving (Taskforce Consumer Experience) of the Dutch Council of Shopping Centers (NRW). In order to research consumer behavior academically, the NRW and the Eindhoven University of Technology have agreed to exchange knowledge and information. To enhance the exchange of knowledge, five students created a working group. Peter Botter, Wouter Dijkman, Tim Op Heij, Rick Willems and I bundled our strengths. Each of the students read articles related to several topics and summarized the articles which were relevant to the subject. Due to the studies in literature, different research questions were derived. As a result of this working group, Wouter Dijkman, Tim Op Heij, Rick Willems and I designed a communal survey, containing questions which are used for different research questions. I am thankful to them for this cooperation.

Furthermore, I would like to thank the participants of the Taskforce Consumentenbeleving of the NRW for their critical view on the research questions and their expertise in the subject. Special thanks to Marrit Laning (Chairman of the Taskforce Consumentenbeleving) who was my tutor and supervisor during my internship at Redevco. The knowledge and expertise available at Redevco helped me to create the research it has become. I also want to thank my two supervisors from the Eindhoven University of Technology; Aloys Borgers and Ingrid Janssen, for their contribution to this research.

At last, I hope you will enjoy reading my report.

Jeffrey Boerebach

Summary

Why is this research done?

The Dutch retail landscape is changing. Increasing vacancy, demographic changes, rise of e-commerce, the financial crisis, declining consumer confidence and lower purchasing power of consumers are some factors related to this change. The development of e-commerce and competitive leisure activities affect the core of the retail property sector negatively. In addition, the number of visits for hedonic shopping decreased enormously the last years. Consumers are getting increasingly critical about the locations they visit. The assumption is that they will only visit those locations which gives them a feeling of happiness, locations which reflect their identity, or the locations which can fulfill their needs. Research suggests that sense of place leads to loyalty and increases the critical assessment of a destination. However, little research is done on sense of place in shopping locations, while it seems that sense of place can be very important in shopping locations. The central question is: *"What is the relationship between the general judgment of shopping locations and sense of place, and how can sense of place be improved?"* If sense of place is indeed important in shopping locations, we want to explore which personal characteristics of consumers and physical characteristics of the shopping locations contribute to sense of place, in order to give insight in the importance of specific design variables.

What is sense of place?

Sense of place is a set of bonds between an individual and a place that includes affective, cognitive and behavioral components. Sense of place consists of three place constructs: place attachment, place identity and place dependence. Place attachment can be defined in terms of an individual's affective or emotional connection to a spatial setting. Place identity can be regarded as an individual's cognitions, beliefs, perceptions or thoughts that the self is reflected by a particular spatial setting. Place dependence can be considered as the perceived behavioral advantage of a spatial setting in relation to other settings. Sense of place can be measured using a questionnaire containing questions which indicate place attachment, place identity and place dependence.

Which physical characteristics can be distinguished?

Shopping locations can be described by different characteristics. Characteristics regarding merchandising, accessibility, atmospherics, services, entertainment, food and security are categories to describe shopping locations. Research suggests that atmospheric characteristics may be more influential than other marketing inputs that are not present at the point of purchase. Dailey (2004) defined atmospherics as "the conscious designing of spaces to create certain buyer effects. Specifically, designing the buying environments to produce specific emotional effects in the buyer that enhance purchase probabilities." Therefore, atmospherics receive special attention in this research. Atmospherics can be described by five categories: external characteristics; general interior characteristics; layout and design characteristics; point-of-purchase and decoration characteristics; and human characteristics. However, the characteristics are very general and do not always apply to the locations in this research. Therefore, the following physical characteristics are determined for the shopping locations: merchandising (the amount of shops, the affiliates ratio, the main branch, the main market segment, the amount of food and drinks facilities and supermarkets), architecture (historical or non-historical, the main material of the facades, the main color of the facades, variety of colors of the facades, the main material of the flooring, the main color of the flooring, variety of colors of the flooring, indoor or outdoor, the overall building quality and the size of the shopping windows), furniture (the amount of trees, the presence of water, the amount of benches and the presence of artwork) and human scale and crowdedness (the width, height and width-height ratio of the street and the amount of passersby). The physical characteristics are measured by means of observations and desk-research.

Which personal characteristics can be distinguished?

People experience a setting differently depending on their intentions, expectations, and personal state. The mood and the experience of a consumer can be different if they are shopping by themselves or with others. Consumers who shop with a hedonic shopping motivation (shopping for fun) may experience a place different than consumers who shop with an utilitarian shopping motivation (shopping with a goal). Therefore, the following personal characteristics are asked in the questionnaire: shopping motivation, mood, true pleasure (Shopping is a true pleasure), comparison enjoyable (Comparing to other things I could have done, the time spent on shopping was truly enjoyable), exciting new products (I enjoyed being immersed in exciting new products), adventurous feeling (While shopping, I felt a sense of adventure), age, gender, zip code, household composition, educational level, profession, household income, alone/group, group composition, transportation mode and frequency of visiting. The personal characteristics are measured by questions in a survey. Besides the personal characteristics, interaction variables between the physical characteristics and personal characteristics are included because different persons may experience physical characteristics different.

Which research locations were investigated?

The survey locations are located in the inner-city shopping areas of Maastricht and 's-Hertogenbosch. In Maastricht the shopping locations Maastrichter Brugstraat, Stokstraat, Entre Deux and Mosea Forum and in 's-Hertogenbosch the shopping locations Hinthamerstraat, Kerkstraat, De Arena and Burgemeester Loeffplein have been selected. The locations differ in terms of atmospheric characteristics. The survey conducted in the shopping locations contains questions about sense of place, personal characteristics, shopping motivation and general judgment of the location. In total, 918 passersby filled in the survey, which is 67 percent of the approached number of passersby.

Which relationships were investigated and how?

CHAID decision tree analyses are used to determine which personal and physical characteristics are relevant to the dependent variables place attachment, place identity, place dependence, sense of place and general judgment. Based on the decision trees, the relevant variables are transformed into effect variables containing three categories (-1; 0 and 1). The variables place attachment, place identity, place dependence and sense of place are normally distributed and therefore can be used as dependent variables in multiple regression analysis. Multiple regression analysis is used to determine which personal and physical variables contribute statistically significant to the dependent variables. The higher the contribution the more the variable influences the dependent variable. Several multiple regression models are built to provide insight in which type of variables explain the dependent variables best. The variable general judgment is not normally distributed and is therefore transformed into a dichotomous variable. By means of logistic regression, the relationship between the general judgment and sense of place is determined.

What are the conclusions?

The relationship between the general judgment and sense of place indicates that when sense of place increases, the probability of a high general judgment decreases. However, the relationship is weak.

The multiple regression models do not explain the variance of the sense of place dependent variables very well. Nevertheless, the models indicate that personal characteristics are more important to sense of place and its place constructs than physical characteristics. This may be explained because the bond between an individual and a place is personal. In addition, the models show that the physical characteristics of the shopping locations are valued different depending on the personal characteristics of the respondents. Although the regression models do not explain much of the variance, the models provide insight in which personal and physical characteristics contribute to sense of place.

Sense of place consists of place attachment, place identity and place dependence. The place constructs relate positively to each other. Therefore, sense of place can be considered to depend on the variables which contribute to the place constructs. The variable Market segment has a negative contribution to sense of place, indicating that respondents sense a place better when the shops are in the 'middle' market segment compared to the 'high' or 'exclusive' market segments. The middle market segment is more accessible to the mass consumer and therefore important in shopping locations. However, the market segment is valued different depending on the age of the respondents. Old respondents value shops in the middle market segment higher than young respondents. The contribution of the personal characteristics True pleasure, Adventurous feeling and Comparison enjoyable to sense of place indicates respondents who love to shop have a lower sense of place than respondents who do not love to shop. This can be explained because respondent who love to shop and respondents who frequently visit the locations, shop on multiple locations and are not bound to a single location. Female respondents have a higher sense of place towards shopping locations compared to male respondents. Furthermore, the presence of trees in a shopping location influences sense of place positively. Shopping locations with historical buildings have a lower sense of place compared to shopping locations with modern buildings. The presence of food and drink options is valued positive by respondents who shop with a hedonic shopping motivation compared to respondents who shop with an utilitarian shopping motivation.

There is a negative relationship between the general judgment of the location and sense of place. This indicates that a high sense of place corresponds with a low general judgment. The trend is that sense of place depends on the consumers' shopping motivation. Hedonic shoppers have a lower sense of place compared to utilitarian shoppers. Utilitarian shopper consciously make the choice to visit the specific location, while hedonic shoppers consciously make the choice to shop (not specific on a location but more in the whole inner-city). The variable Frequency of visiting has a negative contribution to sense of place. This indicates that sense of place does not lead to loyalty and future returns. Because the consumers who shop with a hedonic shopping motivation has a low sense of place, the probability for a high general judgment is higher compared to a low general judgment. Furthermore, the consumers who shop with a hedonic shopping motivation is the majority of the respondents (52 percent in Maastricht and 45 percent in 's-Hertogenbosch) and therefore it is not obvious to improve sense of place. However, if the shopping location attract more utilitarian shoppers, it is more obvious to improve sense of place.

Which recommendation for further research can be given?

A possible explanation for the low explanatory power of the physical characteristics is that the variation in these characteristics across the 8 research locations is insufficient. Therefore, the first recommendation is to increase the number of shopping locations in order to increase the variation in the physical characteristics. A second recommendation is to investigate sense of place at the level of entire inner-city shopping areas rather than at the level of locations within inner-city shopping areas. Especially consumers who love to shop may consider inner-city shopping areas as a whole.

This research focuses on atmospheric characteristics; however, there are other physical characteristics which may contribute to sense of place. Merchandising, accessibility, atmospherics, service, entertainment, food and security may have a relation to sense of place, which will probably lead to higher explained variances.

Sense of place can be best explained by personal characteristics, but these characteristics do not explain the variance very well. Therefore, more research is needed on the influence of personal characteristics on sense of place.

Which recommendations for implementation can be given?

Developers, designers, shopping center managers, and other stakeholders should realize that improving consumers' sense of place does not mean improving consumers' judgment of a shopping location. There is a

weak, but significant negative relationship between sense of place and general judgment. However, if they want to improve consumers' sense of place, the following recommendations could be put into practice.

Developers

Developers should develop buildings which can facilitate affiliates and shops in the middle market segment. However, physical characteristics are valued different depending on the personal characteristics of the consumers. Therefore, the developer needs to know which type of consumers will visit the location or new development.

Managers

Property managers are the intermediary between the tenant and the property owner. The property manager needs to focus on renting the property to shops in the middle market segment and shops which are affiliates. Furthermore, it is very important for property managers to know which type of consumers visit the location because physical characteristics of the shopping locations are valued different depending on the personal characteristics. For young respondents, the need for shops in the high or exclusive market segments is more important than for old respondents. For managers it is necessary to cluster retailers in terms of market segment.

Investors

For investors it is important to know in which properties they need to invest. Properties with a high sense of place are modern and lower than 9 meters. The retailers renting the units need to be in the middle market segment. A high percentage of the renters need to be affiliates and a few food and drink outlets should be available. Furthermore, it is necessary to know which types of consumers visit the location. Physical characteristics are valued different depending in the personal characteristics of consumers.

Retailers

Although sense of place is influenced depending on market segment and percentage of affiliates, it is important to know for a retailer which physical characteristics positively influence the sense of place experienced by their target group. It will help the retailers in finding the right properties to rent. Modern buildings, surrounded by food and drinks options, high buildings, trees and other comparable (market segment) retailers in the surrounding may improve sense of place. Depending on the target group, the retailer can implement wide or small shopping windows. Students, employed consumers and consumers with a high income value small shopping windows higher.

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1. Introduction

The Dutch retail landscape is changing. Increasing vacancy, demographic changes, rise of e-commerce, the financial crisis, declining consumer confidence and lower purchasing power of consumers are some factors related to this change. Customers are getting increasingly critical about the locations they visit. The assumption is that consumers will only visit the locations which gives them a feeling of happiness, locations which reflect their identity, or the locations which can fulfill their needs. To which places develop consumers emotional bonds? Which places reflect a consumers identity and on which places are consumers dependent? Knowing which personal characteristics of the consumers and physical characteristics of the location contribute to this 'sense of place' will give valuable insight in which locations are future proof.

1.1.   Background

The assumption is that consumers will only visit those locations of which they have a positive perception. Therefore, we need to understand more about consumers' perception of shopping locations. Some research has been done to investigate sense of place in shopping locations. The question arises if sense of place is important for the valuation and satisfaction of shopping locations and if it leads to loyalty and future visits/returns and purchase probabilities. If there is a positive relation between the satisfaction of the location and sense of place, insight in which personal and physical characteristics contribute to sense of place in shopping locations can be helpful to improve the retail sector.

Consumers become more critical about which shopping location they are going to visit, either for hedonic as well as for utilitarian shopping (NRW, 2011). In addition, a striking decline in visits for shopping as leisure activity is observable. The number of visits for hedonic shopping reduced with 20 percent between the periods 2006-2007 and 2008-2009 (NRW, 2011). The competition of hedonic shopping with other leisure activities is substantial, consumers find that shopping is less fun and attractive, partly due to standardization of the supply (NRW, 2011). A study by Allard, Babin and Chebat (2009) established that shopping locations can achieve differentiation from their competitors through the pursuit of exceptional orientations following hedonic and utilitarian dimensions of shopping. Furthermore, perceived differentiation from competitors is found to positively influence customers' attachment to the shopping location. More general than the attachment of the customer to the shopping location is sense of place, which is a set of bonds between an individual and a place that include affective, cognitive and behavioral components.

Shopping can fulfill certain needs, such as psychological or experience needs. Special attention is currently given to the desire for undergoing an experience in order to stimulate leisure activities. In a broad sense, experience is about events that appeal to people in a personal way (Pine and Gilmore, 1999). The personal nature of the experience creates meaning, one of the things fulfilling consumer needs. In addition, Yuksel, Yuksel and Bilim (2010) explored the role of attachment in predicting satisfactory holiday experiences and destination loyalty. More specifically, the study aims to understand whether sense of place influences tourists' evaluation of current experiences and future loyalty intensions. And whether satisfaction mediates the relationship between sense of place and sequential phases of loyalty intensions toward a destination. Results from the research show that positive emotional and cognitive bonds with a place could indeed affect an individual's critical assessment of a destination and his/her loyalty to the place. Knowing that sense of place can be important for the loyalty towards a place, it can also be important in shopping locations. Nevertheless, there is little research done on sense of place in shopping locations.

1.2.   Research goal and questions

The goal of this research is to examine if sense of place is important in shopping locations. Does a higher sense of place lead to a higher satisfaction of the shopping locations, which can result in more footfall and future purchase intentions? If sense of place is indeed important in shopping locations, we want to explore which physical characteristics of the shopping locations contribute to this sense of place, in order to give insight in the importance of specific design variables, and if the physical characteristics are experienced differently depending on personal characteristics. Insight in the importance of specific physical characteristics to sense of place can create guidance in design, development, investment and divestment decisions. The research goal results in the following central questions:

"What is the relationship between the general judgment of shopping locations and sense of place, and how can sense of place be improved?"

The research question contains two parts. The first part: What is the relationship between the satisfaction of shopping locations and sense of place?, is necessary to know what sense of place is, how it can be measured, and what is the relationship between sense of place and the satisfaction or general judgment of the location? The second part is about how to improve the shopping locations to increase sense of place. To answer that part of the question it is necessary to know what is important to the determination of sense of place and which personal and physical characteristics contribute to sense of place. In order to answer the research question, the following sub-questions need to be answered:

- What is sense of place?
- How can sense of place be measured?
- Which physical characteristics for shopping locations can be distinguished?
- How can these physical characteristics be measured/determined?
- What is the relationship between the satisfaction of shopping locations and sense of place?
- Which personal characteristics of respondents contribute to sense of place?
- Which physical attributes of the shopping locations contribute to sense of place?
- How can a shopping location be manipulated to improve the sense of place?

1.3.   Conceptual model

The research can be conceptualized by the conceptual model in Figure 1.3.1. The conceptual model represents three (groups of) relationships. The relationship between the general judgment of the location and sense of place indicates the importance of sense of place in shopping locations (Figure 1.3.1; Number 1). Furthermore, sense of place consists of the indicators place attachment, place identity and place dependence (Figure 1.3.1; Number 2). These place constructs can be measured using a survey among respondents present in the specific survey locations. Place attachment, place identity and place dependence may be dependent on both personal characteristics of the respondents and physical characteristics of the locations (Figure 1.3.1; Number 3). In addition, also the interaction between personal and physical characteristics (Figure 1.3.1; Number 4) are included because different respondents may value physical characteristics differently. Determining which independent variables contribute to the place constructs will give insight in which personal and physical characteristics contribute to sense of place, and how the environment can be manipulated to improve sense of place.
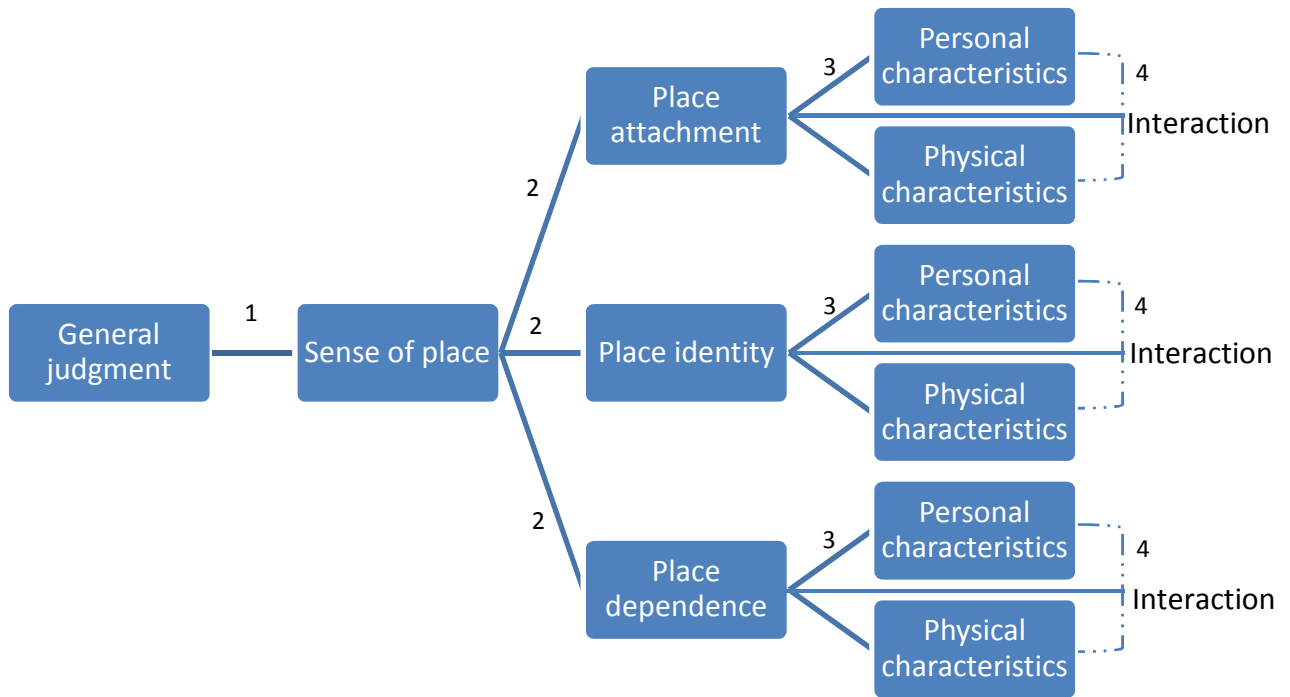
Figure 1.3.1: Conceptual model research

1.4.   Organization

This graduation report is organized in line with the sub-questions. First of all, sense of place will be described in Chapter 2 to understand what this phenomenon is and how it can be measured. Chapter 3 gives insight in which physical characteristics can describe shopping locations. The atmospheric characteristics receive special attention as it is experienced by the human 'senses' and may be the most influential to sense of place. The research design, containing the explanation of the survey and the research locations is described in Chapter 4. Resulting from the survey, Chapter 5 contains the data collection itself and the external factors (grocery market, weather conditions) which were present during the conduction of the survey. Furthermore, the data collection will describe the sample and the response-rate. Chapter 6 presents the results of data analysis. Also the techniques used for statistical analyses will be explained. Finally, the general conclusion and discussion will be given in Chapter 7, followed by recommendations for implementation.

2. Sense of place

In this chapter, the concept 'sense of place' will be elaborated. In the first section of this chapter, the question 'what is sense of place?' will be discussed. Next, the question 'how can sense of place be measured?' will be answered. In the final section, some conclusions will be drawn.

2.1.   What is sense of place?

There are many concepts describing the relationship between people and spatial settings; however, sense of place is used most often. This chapter will describe sense of place and its constructs, but first we need to understand what 'place' means. Tuan (1979) declared that a place is a 'center of meaning' or 'field of care' that emphasized human emotions and relationships. Ryden (1993) added that "a place … is much more than a point in space … but takes in the meaning which people assign to that landscape through the process of living in it". Tuan (1977) also defined place, he stated that physical space becomes place when we attach meaning to a particular geographic locale. Thus, what begins as undifferentiated space becomes place as we get to know it better and endow it with value.

According to Nielsen-Pincus, Hall, Force and Wulfhorst (2010), sense of place involves an interplay of affect and emotions, knowledge and beliefs, and behaviors and actions in reference to place. Sense of place is a set of bonds between an individual and a place that include affective, cognitive and behavioral components, it is considered the umbrella of three constructs: (1) Place attachment, which is defined as "the positive bond that develops between a person and his/her environment", (2) Place identity, which is "a person's identity with relation to the physical environment", and (3) Place dependence, which is thought of as the "perceived strength of association between a person and a place" (Jorgensen and Stedman, 2001). However, Deutsch and Goulias (2009) added a fourth construct to sense of place, place satisfaction. Place satisfaction is defined as "a person's level of satisfaction with the services, environment and needs provided for by a specific place". Place satisfaction is not considered a core construct of sense of place, but when combined with place attachment it elaborates the social psychology dimensions of sense of place. Besides place attachment, place identity, place dependence and place satisfaction, the built environment or physical attributes of a location as well as the founded social and cultural associations to the location are also essential in forming these aspects of sense of place. In addition, people experience a setting differently depending on their intentions, expectations, and personal state.

In the literature there are some contradictions concerning the relationship between sense of place, place attachment, place dependence and place identity. Williams, Patterson, Roggenbuck and Watson (1992) state that sense of place is often associated with an emotional or affective bond between an individual and a particular place, which is strongly similar to the definition of place attachment by Jorgensen en Stedman (2001). Willams *et al.* (1992) described that place attachment consists of two primary conceptualizations, place dependence and place identity. In addition, Shamsuddin and Ujang (2008) use place attachment as an element of sense of place and define place attachment as the bond established between individuals and places. Place attachment is reflected in the users' identity and dependence on their settings. Shamsuddin and Ujang (2008) found in their research that place attachment is strongly shaped by the functional, emotional an socio-cultural attributes, resulting in an emotional and functional attachment to places. According to the person-process-place (PPP) framework developed by Scannell and Gifford (2010), place attachment is a bond between an individual or a group and a place that can vary in terms of spatial level, degree of specificity, and social or physical features of the place, and is manifested through affective, cognitive, and behavioral psychological processes. In contrary, these processes are defined as sense of place by Nielsen-Pincus *et al.* (2010). It should be clear that there is a considerable degree of overlap among place attachment, place identity, and place dependence, but they have distinctive characteristics also. To elaborate the differences and similarities, the place constructs will be explained in more detail.

2.1.1.   Place attachment

According to Nielsen-Pincus *et al.* (2010), place attachment is most simply described as the emotional bonding between people and places. It explicitly contains emotional content (Jorgensen and Stedman, 2001). Similar to interpersonal attachment, a strong attachment to place can be thought of as an long-term bond that results in a feeling of comfort to which there is a desire to maintain closeness. Drawing on interpersonal attachment theory, Giuliani (2003) distinguishes place attachment from other bonds to places by the feeling of well-being and security that a person draws from a place to which they are attached. Relph (1976) argues that attachment grows over time as our experience with a particular place becomes increasingly deep and diverse. This emotional bond with a place is distinguished from other connections to a place such as the belief one has about how a place is reflected in their self-identity (place identity) or the behavior for which a place is well suited as compared to other places (place dependence).

2.1.2.   Place identity

Place identity involves dimensions of the self that define the individual's personal identity in relation to the physical environment by conscious and unconscious ideas, beliefs, preferences and skills relevant to this environment. Place identity is the belief that a place is reflected in the self, according to Proshansky, Fabian and Kaminoff (1983). Place identity is generally accepted as being a component of a person's self-identity, and that a strong place identity gives meaning and purpose to life, increases self-confidence, and enhances the sense of belonging to the group or community that shares a particular place identity (Nielsen-Pincus *et al.*, 2010). Korpela (1989) linked the concept of place identity to a process of 'environmental self-regulation.' Korpela (1989) argued that the environment is not only a mediator in regulating social interaction, but also a means of creating and maintaining one's self. Place identity is distinguished from place attachment by its focus on belief about self, from which one draws meaning and purpose as opposed to feelings of well-being and security. Place identity's focus on psychological, social, and cultural desires also distinguishes it from place dependence that supports specific functional goals through facilitating some specific set of behaviors.

2.1.3.   Place dependence

Stokols and Shumaker (1981) defined place dependence as a person's perceived strength of association between him or herself and specific places. The concept of place dependence is a form of attachment associated with the potential of a particular place to satisfy the needs and goals of an individual. Also, the assessment of how the current place is compared to other available settings may satisfy the same set of needs. Williams and Vaske (2003, p. 831) defined place dependence as a functional attachment that reflects the importance of a place in providing features and conditions that support specific goals or desired activities. Place dependence concerns how well a setting serves goal achievement given an existing range of alternatives and suggests that the interaction between the physical attributes of a place and social behaviors plays an important role in determining the nature of the relationship between people and place. Place dependence appears to differ from attachment because the strength of connection of the social actor to the setting may be based on specific behavioral goals rather than general affect.

2.2.   Measurement

Sense of place is measured differently with regard to different places. Sense of place to homes, cities, neighborhoods, regions, countries and continents are for instance researched among different residents, groups and individuals. Furthermore, a lot of research is done on sense of place for recreational settings, holiday locations, lake property, traditional retail streets and natural landscapes, to provide insight on the nature of human-place bonding by examining sense of place effects on respondents' perceptions of social and environmental conditions. Most research is done both qualitatively and quantitatively, first qualitatively by interviewing stakeholders and secondly by quantifying the researched items in a survey among respondents. Qualitative methods are used to delight model which are subsequently tested quantitatively. However, many

models already exist and those are often used by multiple researchers. Therefore, this research will be done quantitatively to provide empirical evidence on sense of place in shopping locations.

Quantitative research provides numerical insight and often gives answers to questions which can be expressed in terms of quantity. For quantitative research surveys are often the preferred tool. Sense of place is a hypothetical construct that is not accessible through observation, but can be assumed on the basis of measured responses (Jorgensen and Stedman, 2001). When interpreted as an individual's favorable attitude toward a spatially described object, sense of place can be derived from responses of an affective, cognitive or behavioral nature. When each of these classes (affective, cognitive or behavioral nature) of response is regarded as being mediated by a distinct construct, the place concepts of place attachment, place identity, and place dependence are evoked.

Jorgensen and Stedman (2001) measured sense of place among lakeshore property owners using a twelve items survey (Table 2.2.1) with a 5-point Likert response scale ranging from 'strongly disagree' to 'strongly agree'. The twelve items represent the three place constructs, where each construct is measured using four items.

Table 2.2.1: Questions relating to sense of place by Jorgensen and Stedman (2001)

Factor	Item description
Place attachment	I feel relaxed when I am at my lake property
	I feel happiest when I am at my lake property
	My lake property is my favorite place to be
	I really miss my lake property when I am away from it for too long
Place identity	Everything about my lake property is a reflection of me
	My lake property says very little about who I am
	I feel that I can really be myself at my lake property
	My lake property reflects the type of person I am
Place dependence	My lake property is the best place for doing the things that I enjoy most
	For doing the things I enjoy most, no other place can compare to my lake property
	My lake property is not a good place to do the things I most like to do
	As far as I am concerned, there are better places to be than at my lake property

Deutsch and Goulias (2009) designed questions to determine sense of place (Table 2.2.2) based on the questions of Jorgensen and Stedman (2001), to attempt to measure the impact of sense of place on travel behavior. Different from Jorgensen and Stedman (2001), Deutsch and Goulias only used 9 questions in the survey, changed one question from place dependence and replaced it for place satisfaction, and used a 7-point Likert response scale instead of a 5-point Likert response scale. The additional place constructs place satisfaction is used to examine how the respondents value different shopping center attributes such as food options, parking facilities, level of services and entertainment options.

Table 2.2.2: Questions relating to sense of place by Deutsch and Goulias (2009)

Place construct	Questions "Paseo Nuevo or La Cumbre…
Place attachment	makes me feel relaxed."
	makes me feel happy."
	is one of my favorite places in Santa Barbara."
Place identity	reflects the type of person I am."
	says very little about me."
	makes me feel like I can be myself."
Place dependence	meets my needs better than any other location in Santa Barbara."
	I only come when I have specific reasons in mind."
Place satisfaction	"I am satisfied with… (mall attributes such as parking, number of people, food options, entertainment options, products and level of service) "

Nielsen-Pincus *et al.* (2010) used the psychological constructs of place attachment, place identity, and place dependence to assess differences in relationships among new and long-time residents, and absentee and local residents in three rural counties. The constructs were measured with 10 items (Table 2.2.3) using 7-point Likert-type response scales ranging from very strongly agree (7) to very strongly disagree (1). The mid-point of each scale was identified as a neutral response option to take account of non-attitudes. These items were modified from previous measurement research from Jorgensen and Stedman (2001) on the three place constructs.

Table 2.2.3: Questions relating to sense of place by Nielsen-Pincus et al. (2010)

Place construct	Question: How important to you is [this] county and it's landscape?
Place attachment	It is my favorite place to be
	I feel happiest when I am here
	I really miss it when I am away for too long
Place identity	I do not identify with this landscape very well
	Everything about this landscape is a reflection of me
	This landscape says very little about who I am
	I feel I can really be myself when I'm here
Place dependence	As far as I'm concerned there are better places to be
	It is the best place for me to do the things I enjoy
	I would enjoy the outdoor activities I do here just as well in another place

The above mentioned questions are very similar and can be used in shopping locations. The exact questions used in the survey will be described in Chapter 4; Research design.

2.3.   Conclusion

Sense of place is a set of bonds between an individual and a place that include affective, cognitive and behavioral components. Sense of place consists of three place constructs: place attachment, place identity and place dependence. Place attachment can be defined in terms of an individual's affective or emotional connection to a spatial setting. People develop an emotional bond with places if it provides a happy and relax feeling. Place identity can be regarded as an individual's cognitions, beliefs, perceptions or thoughts that the self is reflected by a particular spatial setting. Place identity can be considered as the symbolic value of a location that is perceived or valued by individuals. Place dependence can be considered as the perceived behavioral advantage of a spatial setting in relation to other settings. The place provides components which help to meet a person's needs. Sense of place consist of emotional, symbolic and functional components regarding places.

Sense of place can be measured by conducting questionnaires among respondents using Likert-type response scales. The questions may be based on the work of Jorgensen and Stedman (2001), Deutsch and Goulias (2009) and Nielsen-Pincus *et al.* (2010).

3. Physical characteristics

To examine the relationship between sense of place and physical characteristics of shopping locations, it is necessary to know which physical characteristics can be measured in shopping locations. In this chapter the general characteristics of shopping locations are described. The characteristics of shopping locations contain different categories including atmospherics, which is described more in-depth. The reason for this is that atmospherics are most closely related to sense of place as both are experiences through our senses. Therefore atmospherics receive special attention in this research.

3.1.   Characteristics of shopping locations

Shamsuddin and Ujang (2008) researched the role of place attachment in creating the sense of place for traditional shopping streets in Malaysia. The physical elements, the human activity and the image together form the significant components of place that influence place attachment. In the study activity arose as the most influential component associated with sense of place due to its intensity and visibility. The success of the streets is influenced by their ability to effectively accommodate human activity. In addition, accessibility, legibility, vitality, diversity, choice, transaction, comfort and distinctiveness are strongly identified as significant characteristics contributing to place attachment and sense of place. However, shopping locations are more than the by Shamsuddin and Ujang (2009) mentioned characteristics. Howell (2005), identified four main categories: merchandising, accessibility, services and atmospherics. However, Bellenger, Robertson and Greenberg (1977) added the categories 'entertainment' and 'security' to the main characteristics of shopping locations. Entertainment in shopping locations may consist of 'specialty entertainment' (such as movie theaters), 'special event entertainment' (such as fashion shows) and 'food' (such as food courts, restaurants and cafés). Besides an entertaining and pleasant ambience, a safe shopping center is also central to consumer patronage. Sit, Merrilees and Birch (2003) developed a list of shopping location characteristics (Appendix A; Table A.1), the categories identified will be described more in detail in the next subsections.

3.1.1.   Merchandising

Merchandising is one of the categories describing the characteristics of shopping locations. According to Sit, Merrilees and Birch (2003), four merchandise-related characteristics can be identified to describe the merchandising category: assortment, quality, pricing, and styling and fashion. Merchandising is an important category because it represents the 'core product' of a shopping location. This is supported by Wakefield and Baker's study (1998), which highlighted merchandising and tenant variety as stimuli that induce excitement in shopping locations and thus influence the consumer's behavior in relation to shopping locations. Howell (2005) agrees with the related items provided by Sit *et al.* (2003), in which merchandising is related to the assortment, quality, pricing and styling of goods available in retail locations.

3.1.2.   Accessibility

Sit *et al.* (2003) described accessibility as the ease of getting in and out of a shopping location. Accessibility can be divided into macro-accessibility and micro-accessibility. Macro-accessibility concerns access road conditions to the inner-city or shopping center and the proximity of the shopping location from the customer's place of work or residence. Micro-accessibility refers to parking facilities near the shopping locations and ease of navigation within the shopping location. Howell (2005) recognizes only the micro-accessibility, relating accessibility to the ease of navigation around the shopping location and the availability of parking facilities. The accessibility studies focus mainly on the accessibility by car. Public transportation and accessibility for consumers who visit the shopping locations by bike or by foot are underexposed.

3.1.3.   Atmospherics

Dailey (2004) described the environment of shopping locations as a bundle of characteristics that affect and shape consumer behavior. Research suggests that atmospheric characteristics may be more influential than other marketing inputs that are not present at the point of purchase. Atmospheric characteristics may be even more influential to the purchase decision than the product itself. In addition, Dailey (2004) defines implementing atmospherics characteristics as "the conscious designing of spaces to create certain buyer effects. Specifically, designing the buying environments to produce specific emotional effects in the buyer that enhance purchase probability." An atmosphere is a collection of atmospheric characteristics, which is an individual's perceptual field that stimulates one's senses. According to Foxall (1997), atmospherics are the means by which a shopping location provokes emotional reactions in customers. Atmospheric characteristics encourage consumers to stay, browse, evaluate and purchase; or, discouraging any of these activities. Atmospheric characteristics are aspects of environmental design which influence consumer behavior by creating attention and stimulating affective responses. Research in atmospherics has been at the center of most of the scientific approach to design shopping locations. Later research (re)defined atmospherics to 'ambient factors' that emphasized sound (e.g. music), feel (environmentally based, not product based, e.g. crowding, arousal), smell (overall odor) and sight (environment related, e.g. wall colors) (Quartier, Christiaans and Cleempoel , 2009). In addition, Turley and Milliman (2000) established five broad categories of atmospheric characteristics: external characteristics, general interior characteristics, layout and design characteristics, point-of-purchase and decoration displays, and human characteristics (Table 3.1.1). The external characteristics include the storefront, marquee, entrances, display windows, building architecture, the surrounding area, and parking. The general interior characteristics includes flooring/carpeting, lighting, scents and sounds, temperature, cleanliness, wall textures, and color usage. The third category; layout and design, include characteristics such as fixtures, allocation of floor space, product groupings, traffic flow, department store locations, and allocations within department stores. The point-of-purchase and decoration category of atmospheric characteristics, includes product displays, point-of-purchase displays, posters, signs, cards, teletext messages, and wall decorations. The last category, human characteristics, includes customer crowding or density, privacy, customer characteristics, personnel/employee characteristics, and employee uniforms.

The translation from Table 3.1.1 to a list of more detailed characteristics will be described in Chapter 5; Data collection.

Table 3.1.1: Atmospheric characteristics of shopping locations

External	General interior	Layout and design	Point-of-purchase and decoration	Human
Exterior signs	Flooring and carpeting	Space design and allocation	Point-of-purchase displays	Employee characteristics
Entrances	Color schemes	Placement or merchandise	Signs and cards	Employee uniforms
Exterior display windows	Lighting	Grouping of merchandise	Wall decorations	Crowding
Height of building	Music	Work station placement	Degrees and certificates	Customer characteristics
Size of building	Portable Apps usage	Placement of equipment	Pictures	Privacy
Color of building	Scents	Placement of cash registers	Artwork	
Surrounding stores	Tobacco smoke	Waiting areas	Product displays	
Lawns and gardens	Width of aisles	Waiting rooms	Usage instructions	
Address and location	Wall composition	Department store locations	Price displays	
Architectural style	Paint and wall paper	Traffic flow	Tele text	
Surrounding area	Ceiling composition	Racks and cases		
Parking availability	Merchandise	Waiting cues		
Congestion and traffic	Temperature	Furniture		
Exterior walls	Cleanliness	Dead areas		

3.1.4.   Services

In the literature, services in shopping locations are limited to behavior of retail employees, such as courtesy, behavior and knowledge of sales, and friendliness, which can be classified as personal services. Besides personal services, shopping locations provide communal services in terms of ambulance (such as escalator, elevator and signage) and amenities (such as restrooms) (Howell, 2005; Sit *et al.*, 2003). Both personal and communal services represent the 'core product' that supports the merchandising and also add value to the total shopping experience of customers (Sit *et al.*, 2003). Services are important to improve the consumers convenience during their shopping trip. Nevertheless, in outdoor inner-city areas in the Netherland communal services are less available, and the personal services are only available for in-store.

3.1.5.   Entertainment

Entertainment is crucial to shopping locations because it induces an exciting or fun experience, which in turn could seduce consumer patronage. Entertainment of shopping locations could be categorized into special event entertainment and specialty entertainment (Sit *et al.*, 2003). The key distinction between these two type of entertainment is the length of duration. Special event entertainment is offered on an occasional or seasonal basis for a short period of time, such as fashion shows and bridal fairs. Conversely, specialty entertainment is generally incorporated into property for a longer duration, such as movie theaters and video arcades.

3.1.6.   Food

There are food related items that are associated with the retail mix of shopping locations: 'having restaurants', 'availability of lunch or refreshments'. These items are related to 'presence of related services' (Bellenger *et al.*, 1977), 'facilities' (Nevin and Houston, 1980), 'assortment' (Wee, 1986), and 'variety' (Wakefield and Baker, 1998). Food and entertainment are crucial to the shopper because it creates an entertaining ambience within a shopping center beneficial to a pleasant or exciting shopping experience (Sit *et al.*, 2003).

3.1.7.   Security

Besides attracting consumers, shopping locations also appeal to criminals. Many consumers are risk-averse and thus may be reluctant to visit a shopping location that is perceived to be dangerous. Despite its significance, limited studies have examined the contribution of security to a consumers' perception of the shopping location. Sit *et al.* (2003) discovered three security categories: 'security', 'safe place to be', and 'personal security'. These categories are respectively associated with 'quality of the center', 'facilities' and 'atmospherics/leisure' characteristics.

3.2.   Conclusion

Characteristics of shopping locations can be described by different categories; merchandising, macro-accessibility, micro-accessibility, personal service, amenities, ambulance, atmospherics, security, specialty entertainment, special event entertainment, and food options. Research suggests that atmospheric characteristics may be more influential than other marketing inputs that are not present at the point of purchase. Atmospheric characteristics may be even more influential to the purchase decision than the product itself. Atmospherics can be divided into five categories; external characteristics, general interior characteristics, layout and design characteristics, point-of-purchase and decoration characteristics, and human characteristics. The five categories contain 57 specific atmospheric characteristics. The characteristics can be measured on multiple levels: continuous (for example meters), ordinal or nominal (for example colors).

4. Research design

To determine which physical characteristics and personal characteristics contribute to sense of place, there is a need for different types of information. Sense of place and personal characteristics can be determined by means of a questionnaire. However, physical characteristics cannot be determined by a survey. Therefore, the physical characteristics of the shopping location will be evaluated through observations and desk-research. This chapter will describe the survey and the elicitation of the physical characteristics of the survey locations.

4.1.   Survey

The survey is designed to generate information about the sense of place, personal characteristics and general judgment of specific locations. The complete survey is shown in Appendix B. The survey contains more questions than is strictly necessary for this research. The reason for this is that the survey is designed in cooperation with other graduation students.

4.1.1.   Sense of place

Based on research by Jorgensen and Stedman (2001), Deutsch and Goulias (2009), and Nielsen-Pincus *et al.* (2010), a selection of questions has been made for the measurement of sense of place in shopping locations (Table 4.1.1). For every place construct (place attachment, place identity and place dependence) there is one inverted question. Some of the questions in the survey are quite similar to each other, therefore the questions for the different place constructs were used in different order than shown in Table 4.1.1. The responses are measured on a 7-point Likert response scale, ranging from strongly disagree to strongly agree. The mid-point was a neutral response option. The questions for sense of place are only asked about the specific location the respondent is in at that moment of questioning, because they may not know the other survey locations.

Table 4.1.1: Questions to measure sense of place

Construct	Label	Question
Place attachment	AT1	This place makes me feel relaxed
	AT2	This place makes me feel happy
	AT3	This place is one of my favorite places to be
	AT4	I would not miss this place when it does not longer exists (negative)
Place identity	ID1	This place reflects the type of person I am
	ID2	This place says very little about me (negative)
	ID3	I feel that I can really be myself when I am at this place
	ID4	This place is a reflection of me
Place dependence	DE1	This place meets my needs better than any other place
	DE2	This place is the best place for doing the things that I enjoy most
	DE3	This place is a good place to do the things I most like to do
	DE4	As far as I am concerned, there are better places to be (negative)

4.1.2.   Personal characteristics

People experience a setting differently depending on their intentions, expectations, and personal state. This aspect of sense of place can been seen as the personal state/individual variation (Deutsch and Goulias, 2009). A persons mood during the shopping trip can influence the experience of the shopping location. The mood and the experience a consumer can be different if they are shopping by themselves or within a group. Also, the shopping motivation (e.g. hedonic and utilitarian) may be relevant. In addition, sense of place can differ among age categories, gender, whether the respondents are inhabitants or not, the educational level, their profession (student, employed, unemployed and retired) and household income. Therefore, questions about these personal characteristics are included in the survey.

4.1.3.   Shopping motivation

Babin, Darden and Griffin (1994) distinguished two types of shopping value: utilitarian and hedonic. An utilitarian shopping motivation can be seen as 'shopping with a goal', and a hedonic shopping motivation can be seen as 'shopping as a goal'. However, since enjoying is the desired end, and not happenstance, some utilitarian value might be reflected as well. That is, the consumer may sense that the 'task' of improving, his/her mood has been achieved. As a result, shopping may provide both hedonic and utilitarian value. For example, a consumer might find the product that motivated the shopping trip at an exceptionally low price at the first store visited, creating both types of shopping value. Utilitarian value is present because the product acquisition is completed easily; hedonic value comes from bargain-related hedonic responses.

In addition to the question about shopping motivation and mood, Babin *et al.* (1994) distinguished other questions indicating shopping motivation. The questions are more personal and tell more about the intentions, expectations and personal state of the respondents. In the survey, the respondents have to answer to the statements 'Shopping is a true pleasure', 'Comparing to other things I could have done, the time spent on shopping was truly enjoyable', 'I enjoyed being immersed in exciting new products' and 'While shopping, I felt a sense of adventure' on a 7-point Likert response scale ranging from strongly disagree and strongly agree. When a respondent agrees with the statements, it indicates that the respondent finds shopping a true pleasure, adventurous and enjoyable.

4.1.4.   General judgment of the location

Sense of place is thought to develop as the person experiences the place, therefore it is important when studying this concept to consider the level of experience and familiarity one has with a specific location (Deutsch and Goulias, 2009). The assumption is made that when a respondent visits the location more often, they are more familiar with the location. Therefore the question 'How frequently do you shop on this location?' is asked to the respondents with answer categories '2x a week or more', 'weekly', '2x a month', 'monthly' and 'less'.

Exhibiting the general judgment of the place gives insight in the satisfaction/valuation of the location by the respondents. The respondents must answer to the statement 'What is your general judgment about the following locations?' on a 7-point Likert response scale ranging from negative to positive. The higher the value of the general judgment of the location the more satisfied the respondents are. Relating the general judgment of the location to sense of place gives insight in the importance of sense of place in shopping locations.

4.2.   Study locations

For this research, two cities in the Netherlands are selected, Maastricht and 's-Hertogenbosch (Figure 4.2.1). Both Maastricht and 's-Hertogenbosch belong to the population category 100.000 to 175.000 distinguished by Locatus Verkenner (Locatus, 2012). The cities are comparable regarding the social-cultural characteristics of the population. Furthermore, these cities are chosen because of its historical buildings in the inner-city and the presence of newly developed modern shopping locations with a variety of physical characteristics. The physical characteristics of the shopping locations will be determined based on the atmospheric characteristics of shopping locations distinguished in Chapter 3; Table 3.1.1. Because not all atmospheric characteristics are applicable to the survey locations selected for this research, the following categories of characteristics will be used: merchandise, architecture, furniture and human scale and crowdedness. Merchandise consists of the main branch, the amount of shops, the affiliates ratio, the market segment, the amount of food options, and the presence of a supermarket. Architecture contains elements as historical, material facades, material flooring, color facades, color flooring, indoor, shopping window surface and building quality. Furniture can be determined by the amount of trees, the presence of water, amount of benches and the presence of artwork. Human scale and crowdedness depends on the dimensions of the area; the width of the street, the height of the street, the width-height ratio, and the amount of passersby. The physical characteristics will be determined on several levels of measurement, continuous and categorical variables. Eventually, the variables will be transformed into effect variables, to be useful in future multiple regression analyses. Both effect and dummy variables. Within the cities of Maastricht and 's-Hertogenbosch different locations are selected for the research.

Figure 4.2.1: Locations of Maastricht and 's-Hertogenbosch in the Netherlands

4.2.1.   Maastricht

According to Statistics Netherlands (CBS, 2012), on the 1st of January 2012 the total population in Maastricht was approximately 121.000 inhabitants. There are 58.000 male and 63.000 female inhabitants living in Maastricht, spread over different age categories (Appendix C, Figure C.1). The age category 20 until 25 years is larger than the other age categories, which is explicable by the presence of many students due to the University of Maastricht. For the city of Maastricht, there are four locations selected in the inner-city: Maastrichter Brugstraat, Stokstraat, Entre Deux and Mosea Forum (Figure 4.2.2). The Maastrichter Brugstraat and the Stokstraat can be seen as shopping locations with historical buildings. Entre Deux and Mosea Forum are both newly developed modern shopping locations. All the shopping location are not high-street locations:

Maastrichter Brugstraat is an A2 location, Stokstraat B2, Entre Deux B2 and Mosea Forum is a B1 location. Besides the type of location, the market segment of the shops in the shopping locations differs. The shops in Entre Deux and Mosea Forum are of the middle market segment, while Maastrichter Brugstraat and Stokstraat are not of the middle market segment (high and exclusive market segment respectively). The type of locations (A1, A2, B1, B2 and C) refers to the number of passersby: the number of passersby is highest in A1 locations (Locatus, 2012)

Legend
1: Maastrichter Brugstraat
2: Stokstraat
3: Entre Deux
4: Mosea Forum
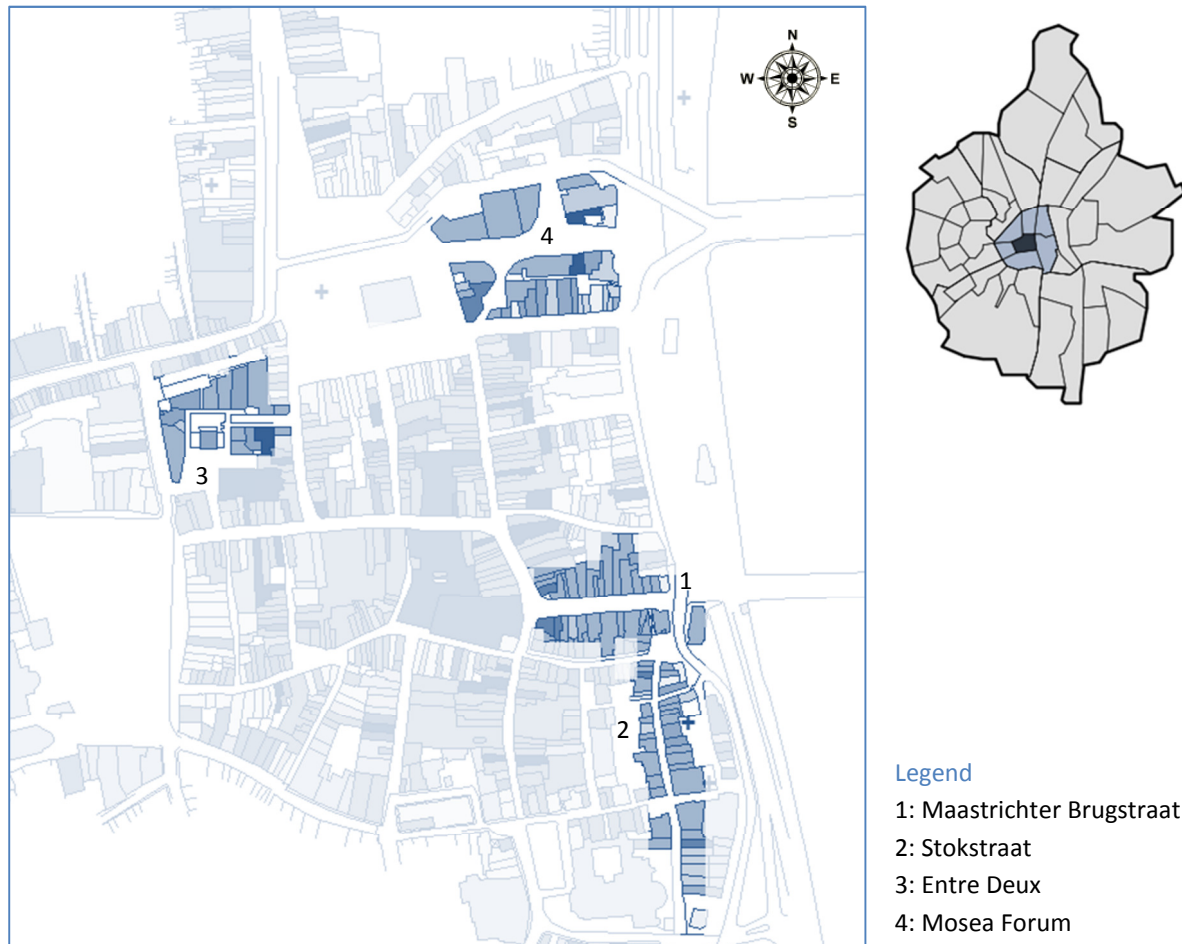
Figure 4.2.2: Survey locations in the inner-city of Maastricht (Locatus, 2012)

The inner-city of Maastricht consists of 1,213 retail units (shops, services and food and drink facilities), with a total surface of 104,076 square meters. 73 percent of the retail units are occupied by independent entrepreneurs representing 34 percent of the total surface. The average surface of a single retail unit is 86 square meters, for the affiliate shops the average surface is 214 square meters. The inner-city of Maastricht is accessible by car and public transport (Table 4.2.1). Maastricht has several parking facilities near the inner-city; eight parking garages, one Park and Ride facility and four Park and Walk areas. The locations of the parking garages and park and ride and the park and walk areas are shown in Appendix D; Figure D.1, the capacity and the opening hours of all the parking facilities are reported in Appendix D; Table D.1.

Table 4.2.1: Accessibility of survey locations in Maastricht (Google, 2012)

Distance to nearest …	Maastrichter Brugstraat	Stokstraat	Entre Deux	Mosea Forum
parking facility (m)	450	500	150	450
bus-stop (m)	400	200	100	200
train station (m)	750	850	1,100	1,000
bicycle parking (m)	50	50	150	50

4.2.2.   's-Hertogenbosch

According to Statistics Netherlands (CBS, 2012), the total population on the 1st of January 2012 in 's-Hertogenbosch was 142.000. 72.000 inhabitants are female and 70.000 inhabitants are male inhabitants (see Appendix C; Figure C.2). In contrast to Maastricht, there are no outliers in the population composition. For the city of 's-Hertogenbosch, there are four locations selected in the inner-city: Hinthamerstraat, Kerkstraat, De Arena and Burgemeester Loeffplein (Figure 4.2.3). All the shopping locations are B1 locations. The Hinthamerstraat and the Kerkstraat are shopping locations with historical buildings. On the contrary, De Arena and Burgemeester Loeffplein are newly developed, modern buildings. The Hinthamerstraat, De Arena and Burgemeester Loeffplein have shops in the middle market segment, while the Kerkstraat have shops in the high market segment.

Legend
1: Hinthamerstraat
2: Kerkstraat
3: De Arena
4: Burgemeester Loeffplein
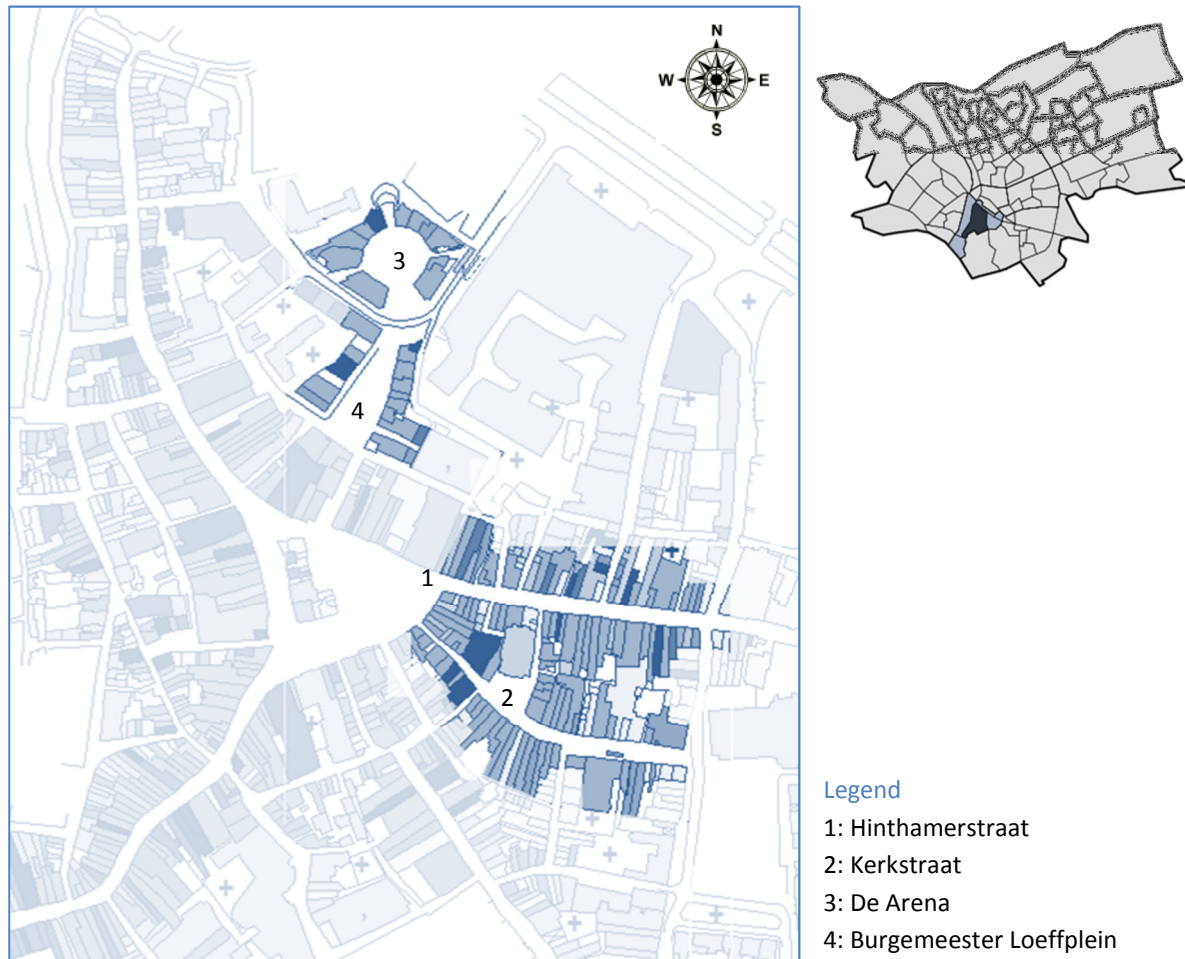
Figure 4.2.3: Survey locations in the inner-city of 's-Hertogenbosch (Locatus, 2012)

The inner-city of 's-Hertogenbosch counts 1,056 retail units, with a total surface of 89,526 square meters. 76 percent of the retail units are occupied by independent entrepreneurs representing 34 percent of the total surface. The average surface of a single unit is 85 square meters, for the affiliate shops the average surface is 232 square meters. The inner-city of 's-Hertogenbosch is accessible by car and public transport (Table 4.2.2). The locations of the parking garages and park and ride facilities are shown in Appendix D; Figure D.2, the capacity and opening hours of the parking facilities can be seen in Appendix D; Table D.2.

Table 4.2.2: Accessibility of the survey locations in 's-Hertogenbosch (Google, 2012)

Distance to nearest …	Hinthamerstraat	Kerkstraat	De Arena	Burgemeester Loeffplein
parking facility (m)	120	200	0	0
bus-stop (m)	200	250	50	50
train station (m)	850	850	750	700
bicycle parking (m)	150	0	200	0

4.3.   Conclusion

The information for sense of place, personal characteristics, shopping motivation and general judgment will be derived through a survey conducted in two cities: Maastricht and 's-Hertogenbosch. Within these cities eight location in the inner-city areas are selected: Maastrichter Brugstraat, Stokstraat, Entre Deux and Mosea Forum in Maastricht and Hinthamerstraat, Kerkstraat, De Arena and Burgemeester Loeffplein in 's-Hertogenbosch. Observation and the Locatus Verkenner (Locatus, 2012) will be used to identified the physical characteristics. The physical characteristics will be determined using four categories: merchandise, architecture, furniture and human scale and crowdedness.

5. Data collection

In this chapter, the two way of data collection will be reported. In the first section, the survey will be described. The data collection regarding the physical characteristics will be described in the second section.

5.1.   Survey

The survey is conducted at eight locations in two cities: Maastricht and 's-Hertogenbosch. The data collection will be completed with additional data in terms of date and time, weather and other conditions, and the response and non-response.

5.1.1.   Date and time

In Maastricht, the surveys were conducted on Wednesday the 4th, Thursday the 5th and Friday the 6th of July 2012. Every day data collection started at 11:00 and finished at 17:00. During the day, the interviewers worked in two groups, changing locations every 90 minutes. This resulted in two periods per day for every location. The periods for the locations differed across days such that the data was collected for each period of the day for each location. The same approach is used for 's-Hertogenbosch. It was planned to collect data on the same days and at the same time periods as for Maastricht, namely Wednesday the 11th, Thursday the 12th and Friday the 13th of July 2012. However, due to bad weather forecasts for Friday, data was only collected on Wednesday and Thursday. Although there were only two days for data collection in 's-Hertogenbosch, the response was similar to Maastricht (474 in Maastricht and 444 in 's-Hertogenbosch).

5.1.2.   Weather and other factors

Weather conditions in Maastricht were good: no rainfall and predominantly sun with a temperature is approximately 25 degrees Celsius (Table 5.1.1). In 's-Hertogenbosch, there was also no rainfall but the temperature was lower (approximately 18 degrees). Conclusion is that the weather is unlikely to skew the results. In Maastricht, on Wednesday and Friday there was a grocery market on the Market square, which causes lots of traffic and passersby in the inner-city. In 's-Hertogenbosch, the grocery market was on Wednesday on the Market square, which also caused a lot of traffic during the day.

Table 5.1.1: The weather conditions during data collection

	Maastricht			's-Hertogenbosch		
	04 July[a]	05 July[a]	06 July[a]	11 July[b]	12 July[b]	13 July[b*]
Max. temperature (^{O} C)	27	27	24	18	18.5	16.2
Min. temperature (^{O} C)	18	17	14	14	11	13
Rainfall (mm)	0	0	0	3	0	9
Symbol	☀	☀	☀	🌤	🌤	🌧

    a.   WeatherOnline, 2012a

    b.   WeatherOnline, 2012b

    ∗   No data collection on 13th of July

5.1.3.   Response and non-response

In total, 1374 passersby were asked to participate in the research. Approaching the passersby with the question whether they were willing to cooperate in a graduation research convinced most of the passersby. This resulted in 67 percent response rate (918 out of the 1374). Taking into consideration response and non-response, 34 percent were male and 66 percent were female. For the response, the division between male and female respondents was rather similar to the total approached passersby (31 percent male, 69 percent female). However, 42 percent of the non-respondents were male and 58 percent were female. This indicates that female passersby are more willing to cooperate in this research than male passersby (Table 5.1.2). The most frequent reason for non-response was the lack of time, or they were just not interested to cooperate.

Table 5.1.2: Response and non-response to the survey

	Total approached		Response		Non-response	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Total	1374	100%	918	67%	456	33%
Male	473	34%	282	31%	191	42%
Female	901	66%	636	69%	265	58%

The respondents are approximately evenly spread across the different survey locations, with similar number of respondents ranging between 105 and 126 (Figure 5.1.1). 52 percent of all respondents were interviewed in Maastricht and 48 percent in 's-Hertogenbosch.
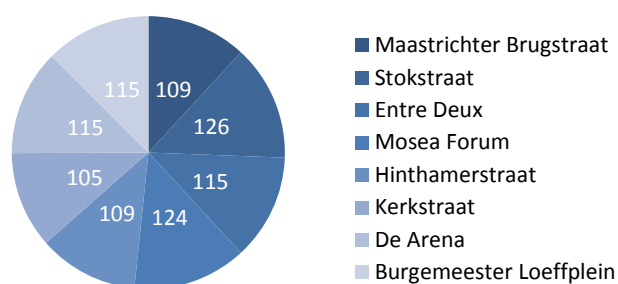
Figure 5.1.1: Respondents per shopping location

At each location, the majority of the respondents were female (Appendix E; Table E.1). However, the non-response was, not evenly divided over the shopping locations (Appendix E; Table E.2). Non-response was higher in Maastricht (38 percent), compared to 28 percent in 's-Hertogenbosch. This may be explained by the fact that all interviewers were inexperienced and improved their skills over the days.

Passersby of all age categories were approached. Information about response and non-response per age category is reported in Table 5.1.3. The response rates for the age categories of 26 to 35 years and 46 to 55 years are below average, possibly because they are less familiar with the phenomenon of students collecting data for their final project.

Table 5.1.3: Age distribution of the response and non-response

Age (years)	Response		Non-response		Response rate
	Frequency	Percentage	Frequency	Percentage	
<18	82	8.9%	23	5.0%	78.1%
18-25	287	31.3%	90	19.7%	76.1%
26-35	88	9.6%	79	17.3%	52.7%
36-45	96	10.5%	85	18.6%	53.0%
46-55	146	15.9%	92	20.2%	61.3%
56-65	145	15.8%	65	14.3%	69.0%
>65	74	8.1%	22	4.8%	77.1%
Total	918	100.0%	456	100.0%	

5.1.4.   Shopping motivation

The shopping motivation of respondents differed between the cities (Figure 5.1.2 and Figure 5.1.3). 52 percent of the respondents in Maastricht shop with a hedonic shopping motivation. In 's-Hertogenbosch, 45 percent of the respondents shop with a hedonic shopping motivation. 28 percent of the respondents in 's-Hertogenbosch shop with an utilitarian shopping motivation compared to 19 percent of the respondents in Maastricht. Although there are differences in the percentage of respondents with a hedonic or an utilitarian shopping motivation between the cities, the percentages of the options 'both' and 'other' are practically equal.
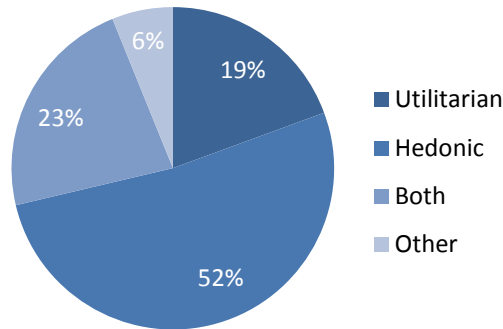
Figure 5.1.2: Shopping motivation respondents Maastricht
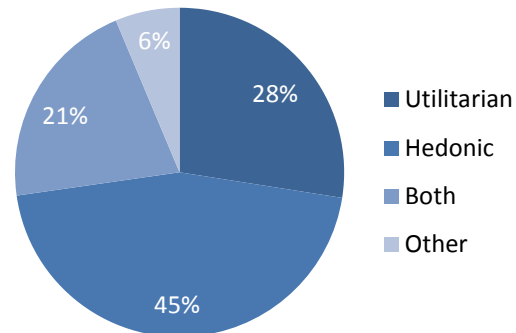
Figure 5.1.3: Shopping motivation respondents 's-Hertogenbosch

Appendix E; Table E.3 and Table E.4 shows the division across the shopping motivations per survey location. Overall, there are no big differences between the survey locations and the average of the city. However, in the Kerkstraat there is a big difference for hedonic shopping compared to the average of 's-Hertogenbosch. The number of respondents with a hedonic shopping motivation is 11.9 percent higher than the average for 's-Hertogenbosch. In addition, the number of respondents with an utilitarian shopping motivation is 17 percent lower than the average of 's-Hertogenbosch.

5.1.5.   Inhabitants and non-inhabitants

Of all respondents, 32.8 percent lived in the city where the survey was conducted (Appendix E; Table E.3). This means that 67.2 percent did not live in the zip code area of the city. In the case of Maastricht, 70 percent of the respondents were no inhabitants of Maastricht and in the case of 's-Hertogenbosch, 63.5 percent of the respondents were no inhabitants.

5.2.   Observation/desk-research

By means of personal observation and desk-research the physical characteristics of the survey locations can be investigated. Several physical characteristics of the locations within the inner-cities of Maastricht and 's-Hertogenbosch were observed. These characteristics focus mainly on the atmospheric cues elaborated in Chapter 3; Table 3.1.1. However, the atmospheric characteristics determined by Turley and Milliman (2000) are very general and do not go into detail. For this purpose, the characteristics which are useful and applicable to the survey locations will be described and observed more in detail. In advance, some of the categories distinguished by Turley and Milliman (2000) are not included because they are constant over the locations or not present in the locations. The atmospheric characteristics of the category 'layout and design' is excluded because it focuses on the in-store element, while this research focuses on the out-of-store (environmental) characteristics. Furthermore, the 'human' characteristics are also excluded because it represents the human characteristics of the employees and privacy, which do not apply to the public character of the survey locations. Much of the characteristics in the 'point-of-purchase and decoration' category are excluded because they also are only applicable to in-store characteristics. However, if a characteristics is present in the environmental setting of the survey locations, it will be included in the research. The physical characteristics investigated in this research are shown in Table 5.2.1 and consists of the categories merchandising, architecture, furniture and human scale and crowdedness. The physical appearance of the survey locations are in Appendix F; Figures F.1 to F.8. The physical characteristics consists of objective measurement and non-objective measurements. The objective measurements are based on desk-research and the Locatus Verkenner (Locatus, 2012) and can be considered as exact measurements. Examples of the objective measurements are the amount of shops, the market segment of the shops, building quality and passersby. The non-objective measurements are based on observations and consist of characteristics as color of the facades, historical buildings and color of the flooring.

Merchandising

The category merchandising can be described by multiple merchandise related characteristics such as the amount of shops present in the location, the percentage of affiliates, the main branch of the shops, the main market segment of the shops, the amount of food and drinks facilities and the presence of supermarkets.

Architecture

The category architecture consist mainly on non-objective measurements such as historical or non-historical, the main material used in the facades, the main color of the facades, are there multiple color used in the facades, the main material of the flooring, the main color of the flooring, are there multiple colors used in the flooring, is the location indoor or outdoor, what is the overall quality of the building and what is the size of the shopping windows.

Furniture

The furniture category consists of the characteristics such as the amount of trees in the shopping location, the presence of water in the shopping location. What is the amount of benches or relaxation facilities present in the shopping location and is there any artwork, such as sculpture or artificial lighting facilities in the location.

Human scale and crowdedness

The human scale and crowdedness of the location consists of the dimensions of the shopping locations: the height of the street, the width of the street and the width-height ratio of the street. The crowdedness of the shopping location is determined by the average number passersby at the location.

Some of the physical characteristics show no or little variation. For example, the main branch for all the survey locations is 'fashion' which makes the variable constant. For the main material of the flooring, only the Stokstraat differs from the other survey locations, the Stokstraat has Cobble stones as flooring material while all the other locations have Clinkers as flooring material (Figure 5.2.1).

Table 5.2.1: Physical characteristics survey locations in Maastricht

	Maastricht				's-Hertogenbosch			
	Maastrichter Brugstraat	Stokstraat	Entre Deux	Mosea Forum	Hinthamerstraat	Kerkstraat	De Arena	Burgemeester Loeffplein
Merchandise								
Main branch[1]	fashion	fashion	fashion	fashion	fashion	fashion	fashion	fashion
Amount of shops[1]	25	29	22	11	48	34	18	17
Affiliates ratio (%)[1]	72	13	96	92	72	63	70	82
Market segment[1]	high	exclusive	middle	middle	middle	high	middle	middle
Amount of food and drinks facilities[1]	3	2	1	1	7	8	1	2
Supermarket[2]	no	no	no	yes	no	no	yes	no
Architecture								
Historical[2]	yes	yes	no	no	yes	yes	no	no
Main material facades[2]	brick	brick	marble	glass	brick	brick	brick	glass
Main material flooring[2]	clinker	cobble stone	clinker	clinker	clinker	clinker	clinker	clinker
Main color facades[2]	grey	white	grey	white	white	white	brown	orange
Multiple colors facades[2]	yes	yes	yes	no	yes	yes	yes	no
Main color flooring[2]	grey	grey	grey	grey	red	red	red	red
Multiple colors flooring[2]	no	no	no	no	yes	yes	yes	yes
Indoor[2]	no	no	yes	no	no	no	yes	yes
Width shopping window[2]	4 m	1.5 m	3 m	12 m	3 m	3 m	3 m	3 m
Height shopping window[2]	3 m	3 m	3 m	4 m	3 m	3 m	2.5 m	2.5 m
Size shopping windows[2]	12 m^2	4.5 m^2	9 m^2	48 m^2	9 m^2	9 m^2	7.5 m^2	7.5 m^2
Building quality[1]	good	excellent	sufficient	good	sufficient	good	sufficient	good
Furniture								
Amount of trees[2]	12	1	0	0	0	1	6	18
Presence of water[2]	no	no	no	no	no	no	yes	no
Amount of benches[2]	0	0	0	0	0	0	6	0
Presence of artwork[2]	no	yes	no	no	no	yes	no	yes
Human scale and crowdedness								
Width of the street (m)[2]	15	8	8	15	15	8	25	20
Height of the street (m)[2]	12	9	12	12	9	9	6	6
Width-height ratio[2]	1.25	0.89	0.67	1.25	1.67	0.89	4.17	3.33
Passersby on Saterday[1]	35,900	7,100	24,100	24,200	34,000	24,300	17,300	31,200

1. Locatus Verkenner, 2012
2. Personal observations

Shopping location De Arena (Figure 5.2.2) is the only survey location with benches to relax and has the presence of water. There are two survey location with the presence of a supermarket: Mosea Forum and De Arena. The Stokstraat is the only location with shops in the exclusive market segment. The color of the flooring differs among the cities. The survey locations in Maastricht have grey floorings while all the locations in

's-Hertogenbosch have red floorings. Therefore, the variable color of the flooring can also be seen as a variable for the different cities. The locations are evenly divided in historical and non-historical areas; the Maastrichter Brugstraat, Stokstraat, Hinthamerstraat and Kerkstraat have historical buildings; and Entre Deux, Mosea Forum, De Arena and Burgemeester Loeffplein are non-historical areas. There are three indoor (or roofed) shopping areas and five outdoor areas. The physical characteristics which contain categories (for example colors) are called categorical variables, the other physical characteristics are continuous variables (for example amount of trees).

Figure 5.2.1: Historical buildings, a tree, cobble stones, small shopping windows and art in the Stokstraat, Maastricht

Figure 5.2.2: Modern building, trees and benches, a supermarket, low height of shopping windows and a roof in De Arena, 's-Hertogenbosch

5.3.   Conclusion

The data is collected in two different ways, by conducting a survey and by observations/desk-research. The survey is conducted on eight locations in the inner-cities of Maastricht and 's-Hertogenbosch on Wednesdays, Thursdays and a Friday in July 2012. The weather was somewhat different in terms of temperature but comparable in terms of rainfall. Additional, possibly disturbing factors during the days were grocery markets in both cities. In total, 1374 persons were approached of which 918 were willing to participate (67 percent). 31 percent of the respondents were male and 69 percent were female.

The physical characteristics of the locations are determined by observations and desk-research. The characteristics investigated are atmospheric characteristics. The main categories which are observed are: merchandise, architecture, furniture and human scale and crowdedness.

6. Results

This chapter will elaborate the results of the survey that has been described in previous sections. The data collection resulted in information about sense of place, personal characteristics, physical characteristics and the general judgment of the locations. The relationship between sense of place and general judgment will be determined. Furthermore, the variables which are relevant to sense of place will be determined.

6.1.   Dependent variables

In statistics, there are dependent and independent variables. The dependent variable is 'dependent' on the independent variable. The dependent variables in this research are the general judgment of the location and sense of place. Sense of place consists of the place constructs place attachment, place identity and place dependence. However, the dependent variables changes depending on the analysis.

6.1.1.   General judgment

To determine if sense of place is important in shopping locations, the relationship with the general judgment must be known. The general judgment of the location can be defined by the satisfaction of the shopping location. The higher the respondents value the general judgment (on a 7-point Likert response scale ranging from negative to positive) the more satisfied the respondent is with the shopping location. The dependent variable general judgment of the location is determined by the answer to the question "What is your general judgment of the following locations?" Analysis of the survey results show that the variable general judgment is not normally distributed (Figure 6.1.1). The mean value (μ = 5.63) of the dependent variable general judgment is high (on a scale of 1 to 7) with a standard deviation of σ = 1.296. The standard deviation shows how much variation exists from the average. A low standard deviation indicates that the data tend to be very close to the mean. If variables are normally distributed, the coefficient to determine the Skewness must be in the range of minus two times the standard error of Skewness and plus two times the standard error of Skewness (Field, 2005). The variable is not normally distributed because the standard error of Skewness is .086 and the Skewness is -.918 (more than two times the standard error) (Appendix H; Table H.1). To be useful in regression analysis, the variable will be transformed into a dichotomous variable (Figure 6.1.2). The values 1 to 5 will be coded 'low general judgment' and the values 6 and 7 will be coded 'high general judgment'.
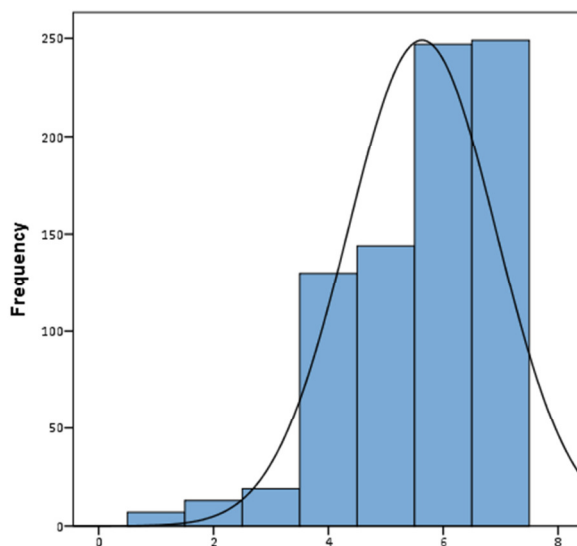
Figure 6.1.1: Histogram dependent variable general judgment
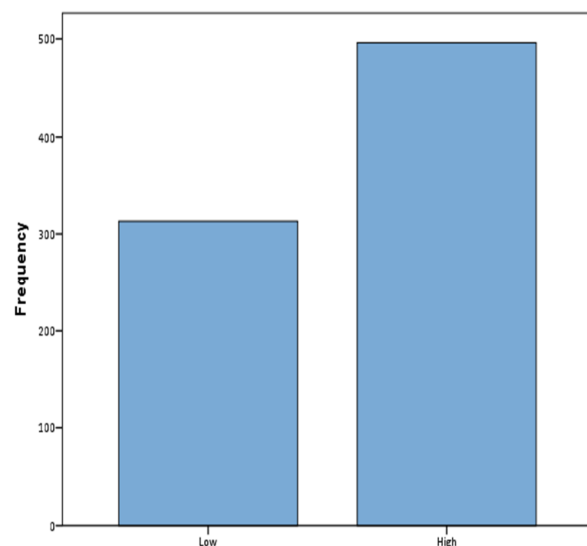
Figure 6.1.2: New dependent variable general judgment

That the variable is not normally distributed can be explained because both cities are in the top 10 best inner-cities of the Netherlands and therefore respondents tend value the locations high. Several researches (Blogspot, 2012; Hotspothollhand, 2012; Plazilla, 2012; Foobie, 2012; Jones Lang LaSalle, 2009) listed the best

cities in the Netherlands to shop and Maastricht and 's-Hertogenbosch are always in the top 10 (Table 6.1.1). These researches differ in terms of scientific credibility and methodology; however, the five researches show that Maastricht is on average the fourth best inner-city to shop in the Netherlands, and 's-Hertogenbosch can be considered the eighth best inner-city to shop. Thus, consumers value the inner-cities of Maastricht and 's-Hertogenbosch highly according to the researches in Table 6.1.1. Furthermore, it can be possible that the respondents judge the shopping locations high because they were interviewed on that specific location. If the consumers do not judge a location very good, they probably will not visit the location.

Table 6.1.1: Multiple lists of the top 10 cities to shop in the Netherlands

N°	Blogspot (2012)	Hotspotholland (2012)	Plazilla (2012)	Foobie (2012)	Jones Lang LaSalle (2009)
1	Amsterdam	Amsterdam	Amsterdam	Amsterdam	Amsterdam
2	Utrecht	Utrecht	Utrecht	Utrecht	Maastricht
3	Rotterdam	Den Haag	Rotterdam	Rotterdam	Utrecht
4	Maastricht	Maastricht	Maastricht	Maastricht	Rotterdam
5	Den Haag	Rotterdam	Den Haag	Den Haag	Eindhoven
6	Groningen	Groningen	Groningen	Groningen	Den Haag
7	Arnhem	Haarlem	's-Hertogenbosch	Arnhem	Arnhem
8	's-Hertogenbosch	Breda	Arnhem	's-Hertogenbosch	Groningen
9	Haarlem	's-Hertogenbosch	Breda	Haarlem	's-Hertogenbosch
10	Breda	Amersfoort	Haarlem	Breda	Amstelveen

6.1.2.   Sense of place and place constructs

Place attachment, place identity and place dependence are each indicated by four questions from the survey (Chapter 4; Table 4.2.1). To determine whether the answers to the questions are consistent, the reliability coefficient Cronbach's alpha is calculated. The Cronbach's alpha has a range of 0 to 1, where the higher the Cronbach's alpha, the higher the consistency of the given answers. Appendix G provides the reliability tests for place attachment, place identity and place dependence. Place attachment is determined by the average value of the questions AT1, AT2 and AT3, which provided a reliability coefficient Cronbach's alpha of $\alpha = .752$. Place identity is determined by the average value of the questions ID1, ID3 and ID4, because the reliability coefficient of these three questions is $\alpha = .737$ compared to a Crondbach's alpha of $\alpha = .316$ for the four questions. Place dependence is also determined by the average value of three questions; DE1, DE2 and DE3. Question DE4 is excluded because the reliability coefficient Cronbach's alpha for the three questions is $\alpha = .832$ compared to a Cronbach's alpha of $\alpha = .437$ for the four questions. Sense of place is indicated by the place constructs place attachment, place identity and place dependence. Sense of place is determined by the average value of these place constructs, and is thus the average value of the questions AT1, AT2, AT3, ID1, ID3, ID4, DE1, DE2 and DE3. The excluded variables from place attachment, place identity and place dependence are all variables which were asked in the reversed direction compared to the other questions. The answers to the inverted questions differ strongly from the other questions, indicating that asking an inverted question can be misinterpreted by respondents. These questions have to be excluded from the place constructs to prevent misleading values.

According to the histograms in Appendix H; Figure H.1, the variables place attachment, place identity, place dependence and sense of place are approximately normally distributed. Table H.1 in Appendix H show that place identity and sense of place are normally distributed, according to the Skewness. The variables place attachment and place dependence are not normally distributed; however, the variables are approximately normally distributed and therefore used as normally distributed variables.

The variables place attachment, place identity and place dependence are strongly related to each other. According to the Spearman's Rank Order correlation (Appendix I; Table I.1), the relationship between place attachment and place identity is $\rho = .741$ ($p = .000$), between place attachment and place dependence is $\rho = .695$ ($p = .000$) and between place identity and place dependence is $\rho = .750$ ($p = .000$). The relationship

between the place constructs are also visible in the scatterplot in Figure 6.1.3. Because the responses are on a 7-point Likert response scale ranging from strongly disagree (1) to strongly agree (7) the scatterplots are also ranging from 1 to 7. The variables place attachment, place identity and place dependence differ across the survey locations (Appendix H; Table H.2).
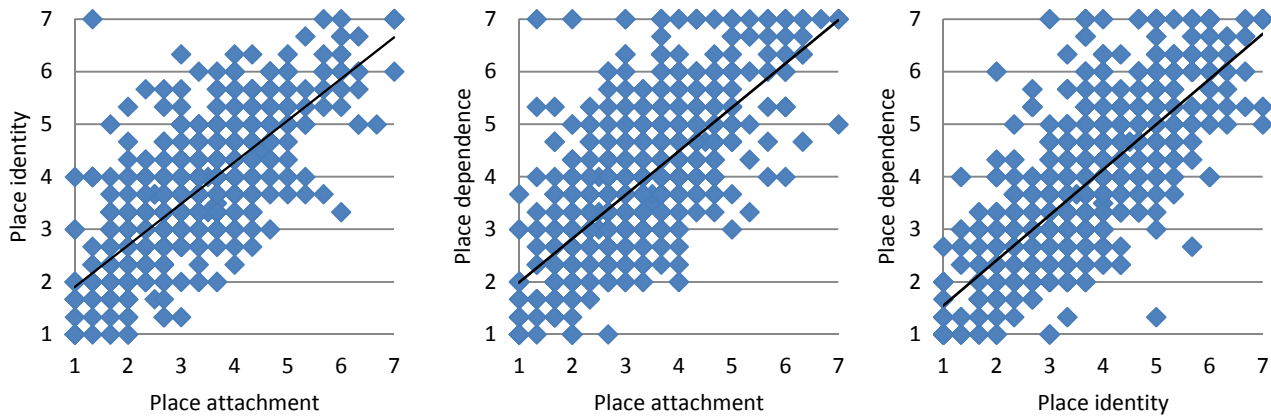
Figure 6.1.3: Scatterplots place constructs

6.2.   CHAID decision tree

There are big differences between the survey locations in terms of sense of place. It is interesting to know which personal and physical characteristics are relevant to the sense of place variables and cause the differences between these dependent variables. The different shopping locations have different physical characteristics and the locations are visited by different types of consumers. Determining the relevant physical and personal characteristics for the dependent variables will explain the differences in sense of place between the shopping locations. To determine which personal or physical characteristics are relevant for place attachment, place identity, place dependence, sense of place and general judgment, a CHAID decision tree is built. The acronym CHAID stands for Chi-squared Automatic Interaction Detector. The CHAID technique constructs trees. The first step is to create categorical variables out of any continuous variable by dividing the respective continuous distributions into a number of categories with an approximately equal number of observations. For categorical predictors, the categories are "naturally" defined. The next step is to cycle through the variables to determine for each variable the pair of categories that is least significantly different with respect to the dependent variable ($p < .100$). For categorical variables, it will compute a Chi-square test and for continuous variables F-tests. If the respective test for a given pair of predictor categories is not statistically significant as defined by an alpha-to-merge value ($p < .100$), then it will merge the respective predictor categories and repeat this step (i.e., find the next pair of categories, which now may include previously merged categories). The third step is to choose the split predictor with the smallest adjusted p-value (i.e., the predictor variable that will yield the most significant split). If the smallest adjusted p-value for any predictor is greater than some alpha-to-split value ($p < .100$), then no further splits will be performed, and the respective node is a terminal node (the terminal nodes have a minimum of 20 observations). (StatSoft, 2012)

The CHAID decision trees of the dependent variables place attachment, place identity, place dependence, sense of place and general judgment are shown in Appendix J; Figure J.1 to J.5. The independent variables contain both physical characteristics of the shopping location and personal characteristics of the respondents. Derived from the CHAID decision trees, the personal and physical characteristics which are relevant to the dependent variables can be distinguished (Appendix J; Table J.1). Although it is known that sense of place is determined by the average of place attachment, place identity and place dependence, a CHAID decision tree is built for sense of place to indicate if there are differences and similarities in the output. The variable Number

of trees is relevant to sense of place, but is not determined as relevant by the CHAID decision trees of place attachment, place identity and place dependence. Because it is important to sense of place, this variable will be used in further regression analysis.

There are personal and physical characteristics which are not relevant to the dependent variables. Only the personal characteristics Age and Education are not significantly relevant to place attachment, place identity, place dependence, sense of place or general judgment. It is expected that Age is relevant to sense of place (or its place constructs) because sense of place is thought to develop when the place is experienced. Therefore, the variable Age will be used in further regression analysis. Age is also added to the research because it is easy to observe, and therefore will be highly valued and easily applicable by managers. It was also expected that Education is relevant to sense of place because the assumption is that highly educated people attach more value to historical areas than people who are less highly educated. The physical characteristics such as Amount of shops, Supermarket, Material façade, Color façade, Multiple colors façade, Multiple colors flooring, Benches, Shopping window surface, Width street, Width-height ratio street, Passersby and Building quality are not relevant to the dependent variables according to the CHAID decision trees. The variables which are measured on an interval or a continuous scale are split into categories. Depending on the dependent variable (either place attachment, place identity, place dependence, sense of place or general judgment) the CHAID decision trees split the variables into categories (Appendix J; Table J.2). To use the variables in regression models, the variables will be split in mainly two or three categories (Table 6.2.1) using the CHAID decision trees as guidance. The assumption for the effect variables with 3 categories is made that the difference regarding the dependent variable between category 1 and category 2 is equal to the difference between category 2 and category 3. The CHAID decision trees did not find age a significant variable; therefore, categories of the variable are made by the assumption that it is similar to employment. Students are mostly not older than 25 years old, the category employed will be of the age 25 to 65 years old, and the retired respondents are older than 65 years. The underlying questions for the personal characteristics are shown in Appendix K; Table K.1. and the explanation of the physical characteristics is shown in Appendix K; Table K.2.

The transformation of the variables into effect variables resembles the expected contribution by personal and physical characteristics. It is expected that the values in category 3 contribute positively and in category 1 negatively to sense of place and the general judgment of the location. Thus, the outcome which shows that the contribution of the independent variable to the dependent variable in the regression model is negative, it is different from expectations.

Three variables can be interpreted multiple ways. The variable Color of the flooring can be either 'red' or 'grey'. However, all the researched shopping locations in Maastricht have grey floorings and all the shopping locations in 's-Hertogenbosch have red floorings, therefore the variable Color of the flooring can also be seen as a variable to indicate the difference between the cities. Thus, the variable Color of the flooring will be the variable City with categories 1 ('s-Hertogenbosch) and 3 (Maastricht). The variable Material of the flooring can be seen as the difference between locations with cobble stones and clinkers as flooring. However, the Stokstraat is the only shopping location within the researched locations with 'cobble stones' as flooring. Therefore the variable material of the flooring can also be a variable to indicate the Stokstraat with categories 1 (yes) and 3 (no). The last variable which is multiple interpretable is the variable Water. De Arena is the only shopping location with water, therefore it is uncertain whether the contribution is because of the presence of water or it is because of any other variable which is not included in this research. The variable Water will be the variable De Arena with categories 1 (no) and 3 (yes).

Table 6.2.1: Transformed independent variables

Variable	Category 1 (value = -1)	Category 2 (value = 0)	Category 3 (value = 1)	Relevant to…[1]
Personal characteristics				
Mood	≤ good (1-6)		> good (7)	PI, GJ
True pleasure	≤ neutral (1-4)	Fairly agree; agree (5, 6)	> agree (7)	PA, PI, PD, SOP, GJ
Comparison enjoyable	≤ fairly agree (1-3)		> fairly agree (4-7)	PA, SOP
Exciting new products	≤ neutral (1-4)		> neutral (5-7)	PI, PD, SOP
Adventurous feeling	≤ fairly disagree (1-3)	Neutral (4)	> neutral (5-7)	PA, PI, PD, SOP, GJ
Dummy Student	Employed; Retired; Unemployed		Students	PI, PD, SOP, GJ
Dummy Employed	Retired; Students		Employed; Unemployed	PI, PD, SOP, GJ
Age	≤ 25	25 – 65	> 65	
Income	≤ 1200-2000		> 1200-2000	PA, SOP, GJ
Frequency	Less	Monthly; 2x a month	Weekly; 2x a week or more	PD, GJ
Gender	Male		Female	PA, PD. GJ
Shopping motivation	Utilitarian	Both; Other	Hedonic	PI, GJ
Inhabitants	No		Yes	PA, PD, SOP, GJ
Physical characteristics				
Affiliates	≤ 13	13 – 82	> 82	GJ
Market segment	Middle		High; exclusive	PA, PI
Food and drinks	≤ 2		> 2	PA, PD
Historical	No		Yes	PA, PD, SOP, GJ
Material flooring[2]	Cobble stone		Clinkers	PA, SOP, GJ
Stokstraat[2]	Yes		No	
Color flooring[3]	Red		Grey	PI, PD
City[3]	's-Hertogenbosch		Maastricht	
Indoor	Yes		No	PA, PI, SOP
Trees	≤ 0	0 – 6	> 6	SOP, GJ
Water[4]	No		Yes	PD
De Arena[4]	No		Yes	
Artwork	No		Yes	PI, PD, GJ
Shopping window width	≤ 3		> 3	PA
Shopping window height	≤ 2.5	2.5 – 3	> 3	PI
Height street	≤ 6	6 – 9	> 9	PA, PD

1. PA = place attachment, PI = place identity, PD = place dependence, SOP = sense of place, GJ = general judgment
2. Material flooring will be changed into Stokstraat
3. Color of the flooring will be changed into City
4. Water will be changes into De Arena

6.3.   Regression analyses

The general purpose of multiple regression analysis is to learn more about the relationship between several independent variables and a dependent variable. It determines the independent contribution of variables to the dependent variable, and creates a regression model (Field, 2005):

> *Predicted y:* $\hat{y} = constant + b_1 x_1 + b_2 x_2 + … + b_n x_n$
>
> *Observed y:* $y = \hat{y} + e$

The regression coefficient (b) represents the independent contribution (b_n) of each variable (x_n) to the dependent variable (y). The regression line expresses the best prediction of the dependent variable (y), given the independent variables (x). However, nature is rarely perfectly predictable, and usually there is a substantial variation of the observed points around the fitted regression line. The deviation of a particular point from the regression line is called the residual value (e). The R-square value is an indicator of how well the model fits the data. The higher the R^2, the better the model explains the original variability. When the overlap (or tolerance) between two variables is high multicollinearity will appear. Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated. In this situation the coefficient estimates may change erratically in response to small changes in the model or the data. Multicollinearity affects calculations regarding individual predictors. (Field, 2005) Appendix I provides insight in the correlations between personal characteristics, Table I.2; and physical characteristics, Table I.3. Variables which correlate high with each other and non-significant variables will be excluded from the regression model using a stepwise approach.

There are two types of personal characteristics: observable characteristics and non-observable characteristics. The observable personal characteristics are Age, Gender and Shopping motivation. Although shopping motivation is not observable it will be used as observable personal characteristics because the three variables provide the most valuable insight to for example managers and investors. The remaining personal characteristics are part of the non-observable personal characteristics. Besides the personal and physical characteristics, the contribution of interaction variables will be determined. Interaction variables are the product of two variables, one personal and one physical variable. The interaction variables must be interpreted in conjunction with the respective main variable. For every possible combination between personal and physical characteristics an interaction variable is made. In theory, the main variable Food and drinks has an estimated contribution (b) to the dependent variable. The variable Shopping motivation gives a correction to the contribution of the main variable. Thus, the interaction variable should be interpreted in combination with the main variable. If the product contributes statistically significant to the dependent variable it means that the physical characteristics is valued different depending on the personal characteristics.

For every dependent variable, seven regression models have been produced. The different regression models provide insight in which type of variables contribute the most to the dependent variables. The seven regression models relate to:
1. Personal characteristics
2. Observable personal characteristics (age, gender and shopping motivation)
3. Physical characteristics
4. Personal characteristics and physical characteristics
5. Observable personal characteristics and physical characteristics
6. Observable personal characteristics and physical characteristics and interaction variables between observable personal characteristics and physical characteristics
7. Personal characteristics and physical characteristics and interaction variables between personal characteristics and physical characteristics
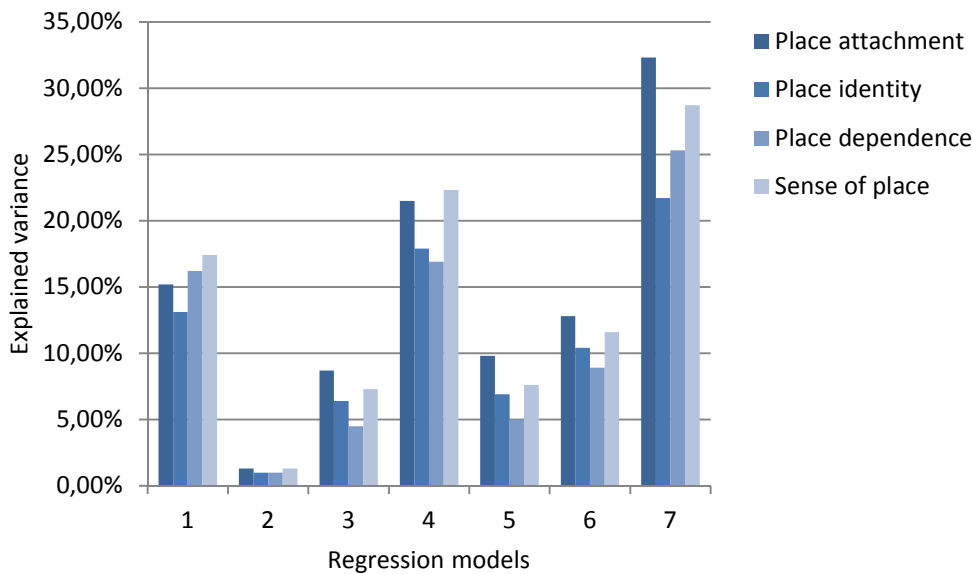
Figure 6.3.1: Explained variance dependent variables

The differences between the regression models are considerable (Figure 6.3.1). The explained variance for only observable personal characteristics (regression model 2) is lowest and the models with personal, physical and interaction variables (regression model 7) perform best. The regression models which contain all the personal characteristics explain the dependent variables the most (e.g. regression model 1, regression model 4 and regression model 7). Regression models 3, 5 and 6 do not contain non-observable personal characteristics explain the variance of the dependent variables the least. Regression model 4 contain both personal and physical characteristics, the model does not explain the variance of the dependent variables much more compared to regression model 1, which contains only personal characteristics. This indicates that personal characteristics are more important for sense of place and its constructs than the physical characteristics. The difference between regression model 4 and 7 is considerable and can be explained by the presence of interaction variables between personal and physical characteristics. This indicates that physical characteristics are valued different depending on personal characteristics. The regression model for physical characteristics, observable personal characteristics and interaction variables between observable personal characteristics and physical characteristics (regression model 6) differs from regression model 7, the model that includes non-observable personal characteristics as well. Regression model 6 explains the dependent variables substantially less than regression model 7. This indicates that it is important for shopping center managers, developers and investors in retail real estate to know the consumers who visit the shopping locations in order to improve the physical characteristics in their favor.

In the next sections for every dependent variable (place attachment, place identity, place dependence and sense of place) the different regression models are explained.

6.3.1.   Place attachment

As explained in Chapter 2, place attachment is the emotional connection between an individual and a particular place. The dependent variable place attachment is normally distributed (Figure 6.3.2). In this research, seven different regression models have been developed to explain which personal and physical characteristics contribute to the emotional connection between the respondent and the location.

Mean = 3.26
Standard deviation = 1.14
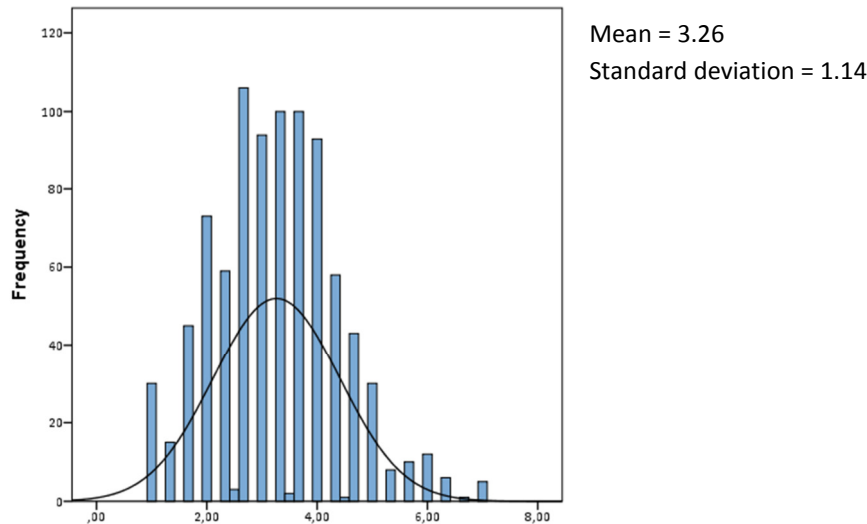
Figure 6.3.2: Normal distribution place attachment for all locations

6.3.1.1.   Personal characteristics

The first regression model (Appendix L.1; Table L.1.1) describes the contribution of personal characteristics to place attachment. The regression model explains place attachment for 15.2 percent (R^2 = .152). The variables which contribute statistically significant to place attachment are True pleasure, Adventurous feeling, Comparison enjoyable, Inhabitants and Dummy employed. The variables True pleasure, Adventurous feeling and Comparison enjoyable indicates how much a respondent loves to shop, it implicitly tells something about a respondent's goal in shopping. When a respondent has a high True pleasure, Adventurous feeling and Comparison enjoyable the place attachment is lower than for respondents who do not find shopping a true pleasure, adventurous or enjoyable compared to other activities. An explanation for this could be that respondents who love to shop are not attached to one specific location which will lead to a lower level of place attachment. The variable Employed indicates that respondents who have jobs are more attached to the location than respondents who are students, retired or unemployed. This can probably be explained by the fact that respondents with jobs have less spare time, and therefore mostly shop on specific locations. Students, retired and unemployed respondents have more spare time and are able to shop on multiple locations resulting in less emotional bonds to single locations. Inhabitants are also less attached to single locations compared to respondents who do not live in the city. Inhabitants know the inner-city locations well and visit it more often resulting in less attachment to a single location, but perhaps more to the whole inner-city. Non-inhabitants may have consciously made the choice to shop in the city under investigation. The non-inhabitants respondents may be more attached to the locations.

6.3.1.2.   Observable personal characteristics

The regression model (Appendix L.1; Table L.1.2) which predicts place attachment by observable personal characteristics (Age, Gender and Shopping motivation) only explain place attachment for 1.3 percent (R^2 = .013). The personal characteristic which contributes statistically significant most to place attachment is Shopping motivation. Respondents who shop with a goal (utilitarian) are more attached to the specific locations compared to respondents who shop as a goal (hedonic) or both (utilitarian and hedonic). This is comparable with the non-inhabitants which consciously made the choice to shop in the city under investigation. Respondents who shop with an utilitarian shopping motivation are shopping with a goal to

purchase specific products, and the products may be achievable at specific location where they thus are attached to. That specific location provides the goal the respondent has. However, respondents who have a hedonic shopping motivation (shopping as a goal) shop because they enjoy it and are not attached to one location. Multiple locations provide the need to shop and not just one specific location. Therefore, respondents who shop with an utilitarian shopping motivation have higher place attachment than respondents who do not shop only with a goal.

6.3.1.3.   *Physical characteristics*

The third regression model which is determined, provides insight in which personal characteristics contribute to place attachment (Appendix L.1; Table L.1.3). The regression model explain place attachment for 8.7 percent (R^2 = .087) and the contribution of the variables Height of the street, Stokstraat (Figure 6.3) and Market segment of the shops is statistically significant. Shopping locations with buildings higher than 9 meters show lesser degrees of place attachment than location where the buildings are lower than 9 meters. The variable Height of the street indicates that the higher the buildings in the shopping location the lower the attachment of consumers to the location. This seems to indicate that respondents are more attached to locations with a human scale. If the shopping location is the Stokstraat, the place attachment is lower compared to the other shopping locations. The last variable which contributes to place attachment is the market segment of the shops. Areas with shops mainly in the 'middle' market segment have higher place attachment compared to areas with shops in the 'high' or 'exclusive' market segments. This indicates that respondents are attached to areas with cheaper and more accessible shops.

6.3.1.4.   *Personal and physical characteristics*

When combining the personal and physical characteristics in a regression model (Appendix L.1; Table L.1.4), the explained variance will increase to 21.5 percent (R^2 = .215). The emotional bond between an individual and a location differs depending on the variables True pleasure, Market segment, Adventurous feeling, Trees (Figure 6.2), Comparison enjoyable, Frequency of visiting, and Dummy employed. Different from the previous regression models, the variables Trees and Frequency of visiting contribute statistically significant to place attachment. Shopping locations with more than 6 trees have higher place attachment than areas with less than 6 trees. Respondents who visit the location frequently are less attached to the location than respondents who do not visit the location on a regular basis. However this is in contrast with the literature, this can be explained because respondents who frequently visit the shopping location also shop more frequently. And it is not obvious that they will always visit the same locations.

Figure 6.1: Historical buildings have a positive contribution to place attachment

Figure 6.2: Trees have a positive contribution to place attachment

Figure 6.3. Stokstraat has a lower to place attachment

6.3.1.5.   Observable personal characteristics and physical characteristics

The regression model (Appendix L.1; Table L.1.5) which contains observable personal characteristics (Age, Gender and Shopping motivation) and physical characteristics explains place attachment for only 9.8 percent (R^2 = .098). The variables which contribute significantly are the Height of the street, Stokstraat, Age, Shopping motivation and Market segment. Different from the other regression models, is the contribution of the variable Age. Although the variable age was not considered relevant by the CHAID decision trees, the idea that it is important is legitimate. Respondents older than 65 years have higher place attachment than respondents who are younger than 65 years. Respondents in the age category 0 to 25 years have lower place attachment than the age category 26 to 65 years. This indicates that place attachment develops by age, which is also mentioned in the literature. The emotional connection between a person and a location does not appear suddenly, but is developed by the experiences of the location (see also Chapter 2.1). Therefore, older respondents have higher place attachment compared to younger respondents.

6.3.1.6.   Observable personal characteristics, physical characteristics and interaction variables between observable personal and physical characteristics

The sixth regression model (Appendix L.1; Table L.6) comprises all the variables which are observable. The regression model explain place attachment for 12.8 percent (R^2 = .128). The variables which contribute statistically significant are Market segment, Market segment x age, Height of the street, Stokstraat, Shopping motivation, Affiliates x age and City x gender. Market segments are valued differently by age categories; older respondents are more attached to the 'middle' market segment compared to 'high' or 'exclusive' market segments. Older respondents are also more attached to shopping locations with a low affiliates percentage compared to locations with a high percentage of affiliates. Female respondents are more attached to shopping locations in 's-Hertogenbosch compared to Maastricht.

6.3.1.7.   Personal characteristics, physical characteristics and interaction variables between personal and physical characteristics

The last regression model (Table 6.3.1) contains all personal characteristics, physical characteristics, and interaction variables between the personal and physical characteristics. The regression model explains place attachment for 32.2 percent (R^2 = .322). The interaction variables which contributes significantly the most to place attachment is Market segment x age. The interaction variable which contributes the least is Food and drinks x dummy employed.

Respondents who are older than 65 years old have relatively high place attachment in areas with 'middle' market segment shops, and lower in 'high' or 'exclusive' market segment areas. Young respondents have higher place attachment in areas with shops of the 'high' or 'exclusive' market segment compared to areas with 'middle' market segment shops. The differences between the age categories can be explained because young respondents are more sensitive to brands and expensive products prove themselves in relation to their people of the same age and are therefore more attached to locations with more expensive shops. Old people do not the urge to prove themselves. The product of height of the street and exciting new products contribute positively to place attachment. This indicates that respondents who love to delve into exciting new products are more attached to locations with high buildings compared to locations with low buildings. For respondents who do not love to delve into exciting new products, the place attachment is lower in locations with high buildings compared to locations with low buildings. In historical areas, respondents who are older have higher place attachment than young respondents (Figure 6.1). In non-historical areas the opposite is true, old respondents are less attached to non-historical areas compared to young respondents. The product of the variables Trees and Income contributes positively to place attachment. This indicates that the locations with trees are higher valued by respondents with high incomes compared to low incomes. The variable De Arena x frequency of visiting indicates that respondents visit shopping location De Arena more often compared to other shopping locations.

Table 6.3.1: Regression model 7 for place attachment

Labels Figure 6.3.3	Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
	(Constant)	3.168	.043	73.291	.000
X1	Market segment x age	-.526	.090	-5.837	.000
X2	Market segment	-.411	.047	-8.763	.000
X3	Height of the street x exciting new products	.300	.084	3.594	.000
X4	True pleasure	-.286	.065	-4.368	.000
X5	Adventurous feeling	-.278	.049	-5.687	.000
X6	Historical x age	.271	.083	3.262	.001
X7	Trees x income	.212	.048	4.448	.000
X8	De Arena x frequency of visiting	.191	.055	3.441	.001
X9	Affiliates x mood	-.188	.055	-3.394	.001
X10	De Arena x inhabitants	-.182	.064	-2.865	.004
X11	Height of the street x gender	-.182	.079	-2.299	.022
X12	Inhabitants	-.176	.058	-3.034	.003
X13	Shopping window width x dummy students	-.141	.045	-3.123	.002
X14	Food and drinks x shopping motivation	.139	.044	3.179	.002
X15	Comparison enjoyable	-.128	.042	-3.034	.002
X16	De Arena x dummy employment	-.122	.037	-3.328	.001
X17	Exciting new products	.121	.046	2.619	.009
X18	Artwork x exciting new products	.116	.036	3.221	.001
X19	Trees	.107	.055	1.951	.051
X20	Shopping window width x income	-.094	.043	-2.188	.029
X21	Food and drinks x dummy employment	-.083	.037	-2.229	.026

The percentage of affiliates in the shopping locations is valued differently depending on the mood of the respondents. The variable Affiliates x mood contribute negatively to place attachment. Respondents with a good mood are more attached to locations with a high percentage of affiliates. Those respondents are more open to familiar brands and products. Inhabitants are less attached to De Arena compared to other shopping locations. Male respondents are more attached to shopping locations with high buildings compared to female respondents, who are more attached to shopping locations with lower buildings. The variable Shopping window width x dummy students contributes negatively to place attachment, which indicates that students are more attached to small shopping windows compared to respondents who are not students. Respondents with a hedonic shopping motivation are more attached to shopping locations with more than 2 food and drink options because their goal is to have an experience rather than achieving the goal to purchase a specific product. For respondents with an utilitarian shopping motivation, the presence of food and drink options is less important. Respondents who have jobs (are employed) are less attached to De Arena compared to other respondents. This can be combined with the variable De Arena x frequency of visiting. Respondent who have jobs, are not able to visit the location frequently and therefore are not attached to shopping location De Arena.

Shopping locations with artwork have a higher place attachment if the respondent loves to delve into exciting new products compared to respondents who do not love to delve into exciting new products. Respondents with high incomes are more attached to shopping locations with small shopping windows compared to locations with wide shopping windows. For respondents with a low income, the place attachment in shopping locations with small shopping windows is lower compared to locations with wide shopping windows. Finally, respondents who are employed are more attached to the locations with less than 2 food and drink options. Respondents who are not employed (students, retired and unemployed) are more attached to locations with more than 2 food and drink options. This can be explained by the fact that respondents with more spare time (students, retired and unemployed) more often visit the shopping locations for hedonic reasons and therefore value the presence of food and drink options higher.

The variables which contribute to place attachment are also shown in Figure 6.3.3. The figure shows how much each variable contributes to place attachment. The estimated regression coefficients (b) indicate the height of the contribution. The higher the b-coefficient, the more the variables influences place attachment. The variable Market segment x age contributes most to place attachment ($b = -.526$) and the variable Food and drinks x dummy employed has the lowest influence on place attachment ($b = -.083$).
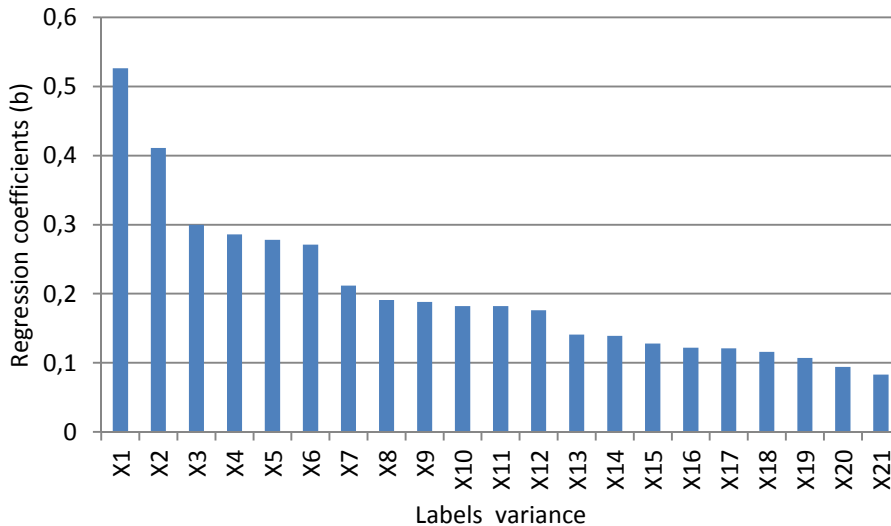
Figure 6.3.3: Estimated coefficients of the independent contribution of the variables to place attachment

6.3.2. Place identity

In Chapter 2, place identity was described as the belief that a place is a reflection of a person's identity. Also, the person's identity is reflected in that specific location. The dependent variable place identity is normally distributed (Figure 6.3.4) and to determine which personal and physical characteristics contribute statistically significant to place identity, seven different regression models are made.

Mean = 3.69
Standard deviation = 1.19
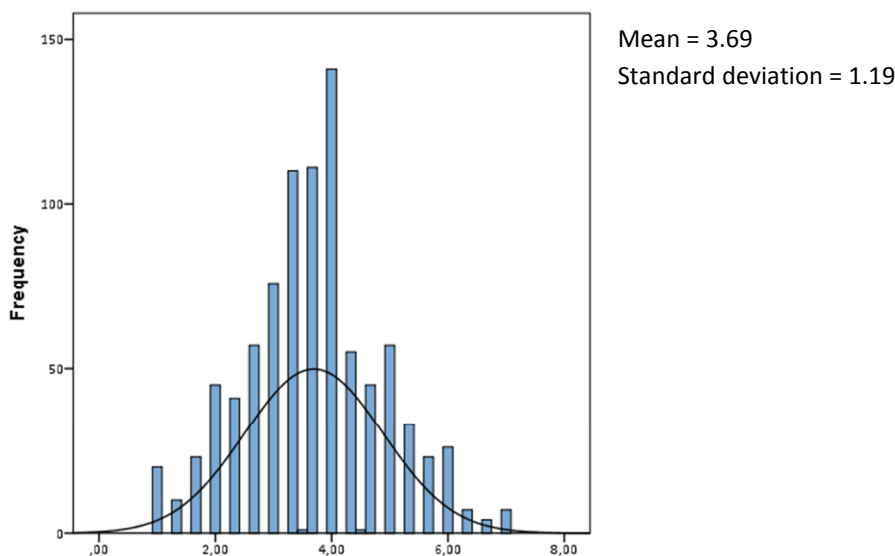
Figure 6.3.4: Normal distribution place identity for all locations

6.3.2.1. Personal characteristics

The regression model for only personal characteristics (Appendix L.2; Table L.2.1) distinguished many statistically significant contributions. The regression model explains the variance for 13.1 percent ($R^2 = .131$).

The variables True pleasure, Adventurous feeling and Comparison enjoyable indicate how much a respondent loves shopping. The variables indicate that respondents who find shopping a true pleasure, adventurous or enjoyable compared to other activities have lower place identity than respondents who do not find shopping a true pleasure, adventurous or enjoyable compared to other activities. It could be that the respondents visit the location to shop, and identify themselves more with shopping in itself rather than with one specific shopping location. Because of the standardized supply, different locations offer the same set of retailers. The variable Dummy employed has a positive contribution to place identity. Respondents who are employed have higher place identity than respondents who are not employed. The variable Frequency of visiting has a negative contribution to place identity which is in contrast to the literature; respondents who frequently visit the shopping location have a lower place identity than respondents who do not visit the location frequently. A possible explanation is that respondents who visit the location more often probably do not focus their shopping activities on a specific location. Being female has a positive effect on the place identity compared to being male.

6.3.2.2. *Observable personal characteristics*

When the regression for only observable personal characteristics is determined (Appendix L.2; Table L.2.2), place identity is only explained for 1.0 percent (R^2 = .010) by one variable. Only the variable Shopping motivation contributes statistically significant to place identity. A persons' identity cannot be explained by age or gender, it is more personal or psychological. However, place identity depends on the shopping motivation and thus the intentions of the visit. The shopping motivation of respondents contributes negatively to place identity when the shopping motivation is hedonic, and positive when the shopping motivation is utilitarian. Respondents who shop with a hedonic shopping motivation shop on multiple locations and do not identify themselves with a specific shopping location. Probably they identify themselves with the whole inner-city and not the specific shopping locations within the inner-city.

6.3.2.3. *Physical characteristics*

The third regression model (Appendix L.2; Table L.2.3) is determined by physical characteristics of the location. The regression model explains place identity for 6.4 percent (R^2 = .064) by means of the physical characteristics of the location. This is not a lot, indicating that there is no close relation between place identity and physical characteristics. Place identity is more personal and psychological, as mentioned earlier. The physical characteristic which contributes most to place identity is the height of the street (Figure 6.4). Higher buildings have a negative contribution to the place identity compared to lower buildings. This indicates that human scale may be important. Respondents identify themselves more with areas with low buildings than areas with high buildings.

Figure 6.4: High buildings have a negative contribution to place identity

Figure 6.5: Historical buildings have a negative contribution to place identity
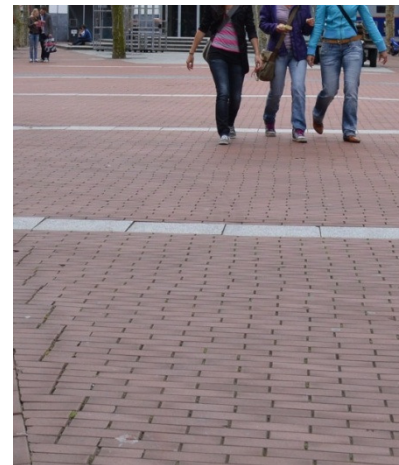
Figure 6.6: 's-Hertogenbosch has a lower place identity compared to Maastricht

6.3.2.4.   *Personal and physical characteristics*

Combining the personal and physical characteristics into one regression model (Appendix L.2; Table L.2.4), results in a model which explains place identity for 18.5 percent (R^2 = .185). Different from the regression model containing only physical characteristics is the significant contribution of the variables Historical (Figure 6.5) and City (Figure 6.6). The variable Height of the street did not occur in the regression model. Historical areas have a negative contribution to place identity, indicating that a person's identity is more reflected in non-historical and modern buildings.

6.3.2.5.   *Observable personal characteristics and physical characteristics*

Observable personal characteristics and physical characteristics resulted in a regression model (Appendix L.2; Table L.2.5) which explains place identity for 6.9 percent (R^2 = .069). The physical characteristics which contributes to place identity are the height of the street and the percentage of affiliates. The personal characteristic which contributes to place identity is Shopping motivation. Different from other regression models is the contribution of the percentage of affiliates. Areas with a higher percentage of affiliates show higher place identity than areas with low percentage of affiliates. This indicates that respondents identify themselves more with locations where most of the shops are familiar formulas. Thus areas with a high percentage of affiliates show a higher place identity than areas with a low percentage of affiliates. Consumers are more focused on the shop and the brand rather than other physical characteristics of the locations.

6.3.2.6.   *Observable personal characteristics, physical characteristics and interaction variables between observable personal and physical characteristics*

The sixth regression model (Appendix L.2; Table L.2.6) contains physical characteristics, observable personal characteristics and interaction variables between observable personal characteristics and physical characteristics. The model explain place identity for 10.4 percent (R^2 = .104). The variables which contribute statistically significant to place identity are Height of the street, Percentage of affiliates, Market segment x age, Food and drinks x shopping motivation, Market segment and City x age. Respondents who are older identify themselves more with shopping locations with shops of the 'middle' market segment compared to 'high' or 'exclusive' market segmented shops. For young respondents the opposite is true, which is comparable to the findings for place attachment. Respondents have higher place identity with shopping locations with a high percentage of affiliates. The place identity differs between the locations in Maastricht and the locations in 's-Hertogenbosch depending on the age of the respondents. Older respondents are more identified with the locations in Maastricht compared to the locations in 's-Hertogenbosch. Young respondents identify themselves more with locations in 's-Hertogenbosch compared to locations in Maastricht. However, these results may be caused by different levels of reference: Maastricht shoppers may have a tendency to assess their place identity higher than 's-Hertogenbosch shoppers.

6.3.2.7.   *Personal characteristics, physical characteristics and interaction variables between personal and physical characteristics*

The last regression model (Table 6.3.2) to predict place identity contains personal characteristics, physical characteristics and interaction variables between personal and physical characteristics. Physical characteristics can be valued differently by different types of respondents. The regression model explained place identity for 21.7 percent (R^2 = .217) by the personal, physical and interaction variables. The variables which are different from the other regression models are the interaction variables Historical x age, Food and drinks x shopping motivation, De Arena x dummy employed, Artwork x exciting new products, Food and drinks x income and Artwork x inhabitants. Historical areas have lower place identity than non-historical areas. The interaction variable Historical x age contributes negatively to place identity, indicating that respondents who are older than 65 years old have lower place identity in historical areas than in non-historical areas. This is different from place attachment, indicating that attachment and identification differ for historical areas. Respondents with a hedonic shopping motivation identify themselves more with locations with more than 2 food and drink options compared to respondents with an utilitarian shopping motivation. Respondents with an utilitarian shopping motivation have a higher place identity with locations with less than 2 food and drink options compared to

respondents with a hedonic shopping motivation. This is consistent with place attachment. Employed respondents have a lower place identity in De Arena compared to other shopping locations. The presence of artwork is positive valued by respondents who love to delve into exciting new products. Respondent with a high income identify themselves more with locations with more than 2 food and drink options compared to respondent with a low income. Respondents with low incomes are more identified with shopping locations with a low number of food and drink options, because they probably cannot afford themselves to use the food and drink options. The presence of artwork in the shopping location has a positive effect on place identity of inhabitants of the city. Non-inhabitants endow less value to the presence of artwork in shopping locations.

Table 6.3.2: Regression model 7 for place identity

Labels Figure 6.3.5	Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
	(Constant)	3.601	.046	78.400	.000
X1	True pleasure	-.328	.074	-4.456	.000
X2	Historical	-.321	.047	-6.851	.000
X3	Adventurous feeling	-.234	.050	-4.642	.000
X4	Historical x age	-.263	.069	-3.785	.000
X5	Frequency of visiting	-.146	.051	-2.878	.004
X6	Food and drinks x shopping motivation	.156	.049	3.181	.002
X7	Gender	.149	.045	3.309	.001
X8	Comparison enjoyable	-.120	.048	-2.490	.013
X9	De Arena x dummy employed	-.113	.040	-2.784	.006
X10	Artwork x exciting new products	.105	.041	2.563	.011
X11	Food and drinks x income	.095	.043	2.188	.029
X12	Artwork x inhabitants	.090	.041	2.173	.030

The variable which contribute the most to place identity is True pleasure (*b* = -.328), the variable which contribute the least significant is Art x inhabitants (*b* = .090). Figure 6.3.5 shows the estimated coefficients of the variables which contribute statistically significant to place identity. Because the value can contribute positively and negatively. Depending on the characteristics, the coefficients are presented positively.
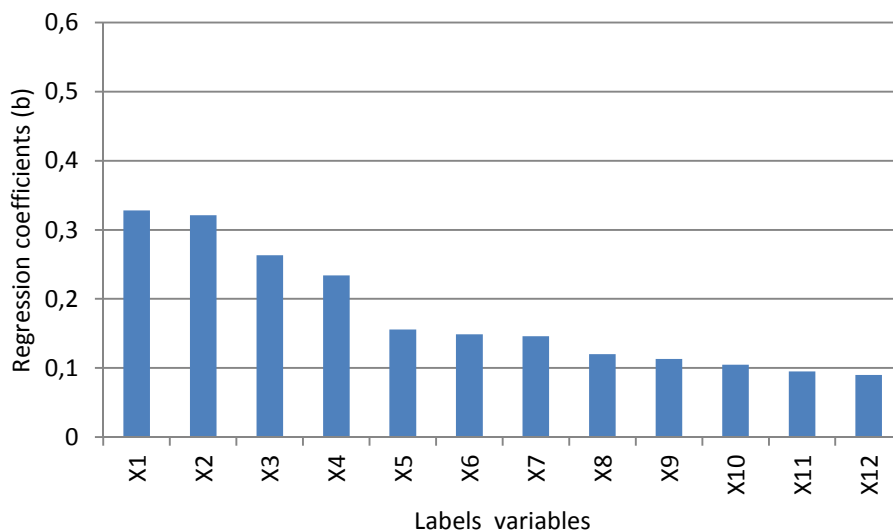
Figure 6.3.5: Estimated coefficients of the independent contribution of the variables to place identity

6.3.3.   Place dependence

Place dependence can be seen as the perceived advantage of the location over other locations which can provide for the same set of needs. Place dependence is normally distributed (Figure 6.3.6). To determine which personal and physical characteristics contribute to place dependence, seven regression models have been produced.

Mean = 3.87
Standard deviation = 1.34
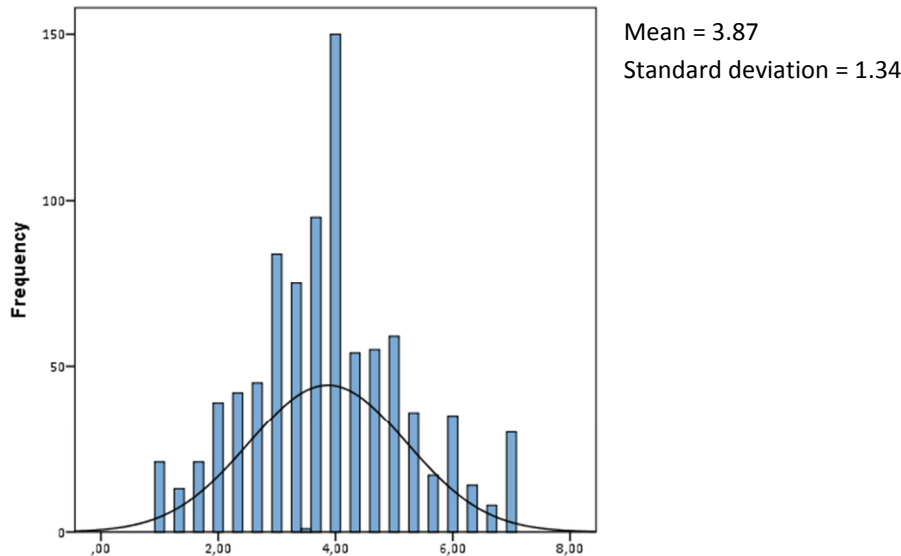
Figure 6.3.6: Normal distribution place dependence for all locations

6.3.3.1.   *Personal characteristics*

The first regression model (Appendix L.3; Table L.3.1) contains only personal characteristics. The model explains place dependence for 16.2 percent (R^2 = .162) by personal characteristics. A person's needs towards a specific location can be predicted by True pleasure, Adventurous feeling, Frequency of visiting, Comparison enjoyable, Shopping motivation and Gender. When a respondent loves to shop, they mostly find shopping a true pleasure, adventurous and enjoyable compared to other activities they could have done. Respondents who agree to the statements about true pleasure, adventurous feeling and comparison enjoyable have lower place dependence than respondents who do not find shopping a true pleasure, adventurous and enjoyable. Because the respondents love to shop, they shop on multiple locations and are therefore less dependent on the specific locations. Other shopping locations may provide for comparable needs, or the respondents know locations which are better for shopping. The Frequency of visiting variable also contribute negative to place dependence, indicating that the more a respondent visits the inner-city, the less the respondents is dependent on the location. This can be explained because the more a respondent shop, the more likely they shop on multiple locations and do not have high place dependence for one specific location. For the same reason the variable Shopping motivation contributes negatively to place dependence. Respondents who shop with an utilitarian shopping motivation are more dependent on the location than respondents who shop with a hedonic shopping motivation. The last personal characteristics which contribute statistically significant to place dependence is Gender, female respondents are more dependent on the location than male respondents.

6.3.3.2.   *Observable personal characteristics*

The second regression model (Appendix L.3; Table L.3.2) contains only the observable personal characteristics age, gender and shopping motivation. The regression model only explains place dependence for 1.0 percent (R^2 = .010). This indicates that the dependency of a respondent to a location cannot be predicted by these personal characteristics. Only the variable Shopping motivation contribute statistically significant to place dependence, which was already be described in regression model 1.

6.3.3.3.   Physical characteristics

The regression model for only physical characteristics (Appendix L.3; Table L.3.3) is also not a good predictor for place dependence. The model explains place dependence for only 4.5 percent (R^2 = .045). There are three physical characteristics which contribute significant to place dependence: the Height of the street, De Arena and the Stokstraat. When the height of the buildings in the street of the shopping location is higher than 9 meters, the place dependence of the respondents towards the location is low. The place dependence is higher when the buildings in the shopping locations are lower than 9 meters. Shopping location De Arena have a higher place dependence compared to the other shopping locations. The Stokstraat has a lower place dependence compared to other shopping locations.

6.3.3.4.   Personal and physical characteristics

Combining the personal and physical characteristics into one regression model (Appendix L.3; Table L.3.4) results in a model which explains place dependence for 16.9 percent (R^2 = .169). Different from the regression models 1, 2 and 3 the variables Gender, Height of the street, De Arena and Stokstraat are excluded. However, the physical characteristics Market segment is included in the model. The variable Market segment indicates that the place dependence in shopping locations with shops in the 'middle' market segment is higher than shopping locations with shops in 'high' or 'exclusive' market segments.

6.3.3.5.   Observable personal characteristics and physical characteristics

Using in the regression model only observable personal characteristics and physical characteristics (Appendix L.3; Table L.3.5) result in the contribution of the variables Height of the street, De Arena, Stokstraat and Shopping motivation. The model explains place dependence for only 5 percent (R^2 = .050).

6.3.3.6.   Observable personal characteristics, physical characteristics and interaction variables between observable personal and physical characteristics

The sixth regression model (Appendix L.3; Table L.3.6) contains only physical and observable personal characteristics. The model explains place identity for 8.9 percent (R^2 = .089). The independent variables which contribute statistically significant to place dependence are De Arena, Market segment x age, Market segment, Shopping motivation and City x gender. Old respondents are more dependent on shopping locations with shops in the 'middle' market segment compared to shopping locations with shops in the 'high' or 'exclusive' market segments. However, young respondents are more dependent on shopping locations with shops in the 'high' or 'exclusive' market segments compared to shopping locations with shops in the 'middle' market segment. Female respondents have a higher place dependence in 's-Hertogenbosch compared to Maastricht. Male respondents are more dependent on Maastricht compared to 's-Hertogenbosch. Again, this may be caused by differences in the level of reference.

6.3.3.7.   Personal characteristics, physical characteristics and interaction variables between personal and physical characteristics

Different from the other regression models to predict place dependence is that this regression model contain both personal and physical characteristics and the interaction variables between the personal and physical characteristics. The regression model (Table 6.3.3) explains place dependence for 25.3 percent (R^2 = .253). The interaction variables which contribute statistically significant to place dependence are Market segment x age, De Arena x frequency of visiting, Shopping window width x dummy students, Food and drinks x exciting new products, Artwork x exciting new products, De Arena x inhabitants, Indoor x adventurous feeling, Shopping window width x dummy employed, Food and drinks x gender and Food and drinks x dummy employed. Respondents who are older than 65 years old have higher place dependence in areas with shops of the 'middle' market segment compared to areas with shop of 'high' or 'exclusive' market segment. When the respondent is younger than 25 years old, the place dependence is higher in areas with shops of 'high' or 'exclusive' market segment compared to shopping locations with shop of the 'middle' market segment. The variable Market segment has a negative contribution to place dependence, indicating that locations with shops of 'middle' market segment have higher place dependence than locations with shops of 'high' or 'exclusive'

market segment. Shops of 'middle' market segment are cheaper than 'high' or 'exclusive' market segment and therefore more accessible for the mass consumer. De Arena has a higher place dependence if respondents frequently visit the location compared to respondents who do not visit the location frequently. The interaction variable Shopping window width x dummy students indicates that the place dependence in shopping locations differs depending on the respondent. Students in location with wide shopping windows have lower place dependence than non-students in locations with wide shopping windows. Students in locations with small shopping windows have higher place dependence than non-students in locations with small shopping windows.

Respondent who love to delve into exciting new products are more dependent on the shopping locations with more than 2 food and drink options compared to other respondents. The interaction variable Artwork x exciting new products (Figure 6.8) contributes statistically significant to place dependence. The interaction variable indicates that respondents who love to delve into exciting new products are more dependent on the locations with artwork than locations without artwork. As a contrast, respondents who do not love to delve into exciting new products are more dependent on the locations without artwork compared to locations with artwork. Respondents who are inhabitant of the city are less dependent on De Arena compared to other locations. However, De Arena has a higher place dependence compared to other locations (Figure 6.7), only when combined with the variable Inhabitants the dependency is lower. Respondents who find shopping adventurous are more dependent on the outdoor shopping locations compared to indoor shopping locations. On the contrary, respondents who do not find shopping adventurous are more dependent on indoor locations. This indicates that for the respondents who do not love to shop, the comfort of being indoor is more important compared to other respondents. The interaction variable Shopping window width x dummy employed indicate that the place dependence in shopping locations differs depending on the respondent. Employed respondents in location with wide shopping windows have lower place dependence than non-employments in locations with wide shopping windows. Employed respondents in locations with small shopping windows have higher place dependence than non-students in locations with small shopping windows. The place dependence of shopping locations with more than 2 food and drink options is different depending on gender and being employed. Male respondents are more dependent on shopping locations with more than 2 food and drinks options and female respondents are more dependent on shopping locations with less than 2 food and drinks options. Employed respondents have a lower place dependence in shopping locations with more 2 food and drink options compared to non-employed respondents.

Figure 6.7: De Arena has a higher place dependence compared to other locations

Figure 6.8: Artwork has a positive contribution to place dependence

Table 6.3.3: Regression model 7 for place dependence

Labels Figure 6.3.7	Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
	(Constant)	4.072	.079	51.424	.000
X1	Market segment x age	-.429	.073	-5.895	.000
X2	De Arena x frequency of visiting	.340	.068	5.003	.000
X3	True pleasure	-.280	.080	-3.502	.000
X4	De Arena	.255	.075	3.421	.001
X5	Adventurous feeling	-.254	.057	-4.481	.000
X6	Market segment	-.224	.052	-4.289	.000
X7	Shopping window width x dummy students	-.211	.062	-3.418	.001
X8	Comparison enjoyable	-.174	.052	-3.349	.001
X9	Food and drinks x exciting new products	.145	.048	3.021	.003
X10	Artwork x exciting new products	.139	.046	3.019	.003
X11	De Arena x inhabitants	-.133	.057	-2.343	.019
X12	Indoor x adventurous feeling	-.125	.056	-2.254	.025
X13	Shopping window width x dummy employed	-.116	.061	-1.916	.056
X14	Food and drinks x gender	-.096	.046	-2.111	.035
X15	Food and drinks x dummy employed	-.092	.046	-1.996	.046

The variables which contribute statistically significant to place dependence according to the regression model which contain personal, physical and interaction variables are shown in Figure 6.3.7. The variable which contribute the most to place dependence is Market segment x age (*b* = -.429) which indicates that the difference in place dependence between old (> 65 years) and young (<= 25 years) respondents is .858 on a scale from 1 to 7. The variable which contributes the least significant to place dependence is Food and drinks x dummy employed (*b* = -.092).
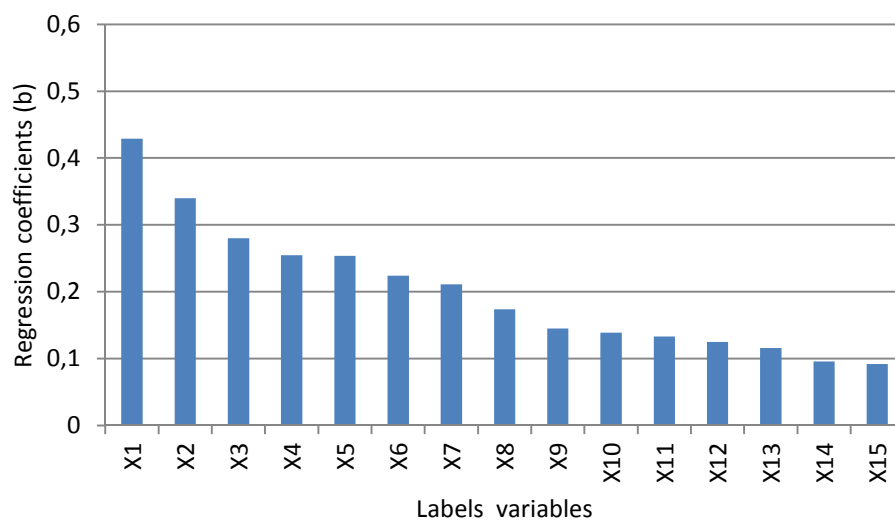
Figure 6.3.7: Estimated coefficients of the independent contribution of the variables to place dependence

6.3.4.   Sense of place

Sense of place is considered to be the average of the values of place attachment, place identity and place dependence. Sense of place is normally distributed (Figure 6.3.8). To determine which characteristics contribute statistically significant to sense of place, multiple regression models are built.

Mean = 3.61
Standard deviation = 1.12
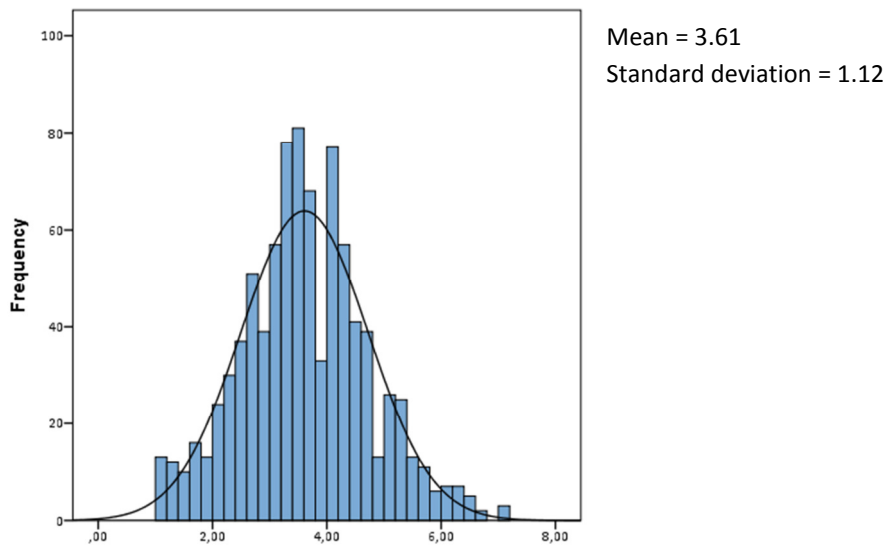
Figure 6.3.8: Normal distribution sense of place for all locations

6.3.4.1.   *Personal characteristics*

The first regression model (Appendix L.4; Table L.4.1) contains only personal characteristics of the respondents. The regression model explain sense of place for 17.4 percent (R^2 = .174). There are no mayor differences between the regression models for sense of place and place attachment, place identity and place dependence.

6.3.4.2.   *Observable personal characteristics*

The regression model which contain only observable personal characteristics (Appendix L.4; Table L.4.2) can explain 1.3 percent (R^2 = .013). It is remarkable that Gender was one of the significant variables in the first regression model while it is not significant in this model. The second regression model only found Shopping motivation to be significant. This is however comparable with the regression models for place attachment, place identity and place dependence.

6.3.4.3.   *Physical characteristics*

The third regression model (Appendix L.4; Table L.4.3) only contains physical characteristics of the location to predict sense of place. However, the model only explains sense of place for 7.3 percent (R^2 = .073). Although the fit is not good, there are three physical characteristics which contribute statistically significant to sense of place. The variable Trees is an important contribution; this is surprising because the regression models for place attachment, place identity and place dependence did not distinguish Trees as a significant contribution.

6.3.4.4.   *Personal and physical characteristics*

The regression model for personal and physical characteristics provides insight in which variables contribute individually to sense of place. The regression model (Appendix L.4; Table L.4.4) explains sense of place for 22.3 percent (R^2 = .223). There are no mayor differences with the regression models for place attachment, place identity and place dependence. Nevertheless, the model differs from the third regression model. All variables distinguished in the third regression model are excluded from the forth regression model except for the variable Trees.

6.3.4.5. Observable personal characteristics and physical characteristics

The regression model with observable personal characteristics and physical characteristics (Appendix L.4; Table L.4.5) explains sense of place for only 7.6 percent (R^2 = .076). The physical characteristics in the regression model are different from the characteristics which are distinguished by the previous regression model. The variable Trees and Market segment are excluded while Stokstraat and Height of the street is included.

6.3.4.6. Observable personal characteristics, physical characteristics and interaction variables between observable personal and physical characteristics

The sixth regression model (Appendix L.4; Table L.4.6) contains only physical and observable personal characteristics. The model explain place identity for 11.6 percent (R^2 = .116). The variables which contribute statistically significant to sense of place are the Height of the street, Market segment x age, the Market segment, Food and drinks x shopping motivation and City x age. Respondents who are older than 65 years old sense a place more if the shops in the shopping location are of the 'middle' market segment. Young respondents sense a place more if the shops are in the 'high' or 'exclusive' market segments. Respondents who shop with a hedonic shopping motivation sense a place more if there are more than 2 food and drink outlets. Respondents who shop with an utilitarian shopping motivation sense a place more if there are less than 2 food and drink options.

6.3.4.7. Personal characteristics, physical characteristics and interaction variables between personal and physical characteristics

The last regression model (Table 7.3.4) explains sense of place for 28.9 percent (R^2 = .289) by personal characteristics, physical characteristics and interaction variables. The interaction variables which contribute statistically significant to sense of place do not differ from the interaction variables which contribute to place attachment, place identity and place dependence. The variables which contribute to sense of place is a good reflection of place attachment, place identity and place dependence. It contains variables which indicate emotional bond between the respondent and the place. Sense of place also contains symbols which provide identification and variables which indicate the functional attachment to the shopping locations. Figure 6.9 and Figure 6.10 shows examples of physical characteristics which contribute to sense of place.

Figure 6.9: Trees have a positive contribution to sense of place

Figure 6.10: Food and drink options have a positive contribution to sense of place

Table 6.3.4: Regression model 7 for sense of place

Labels Figure 6.3.9	Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
	(Constant)	3.595	.044	81.518	.000
X1	True pleasure	-.265	.066	-4.038	.000
X2	Market segment x age	-.248	.073	-3.395	.001
X3	Historical	-.232	.045	-5.101	.000
X4	Adventurous feeling	-.225	.046	-4.910	.000
X5	Height of the street x exciting new products	.174	.075	2.309	.021
X6	Comparison enjoyable	-.163	.043	-3.802	.000
X7	Frequency of visiting	-.153	.045	-3.384	.001
X8	Trees x income	.146	.047	3.071	.002
X9	Affiliates x mood	-.119	.055	-2.149	.032
X10	City	-.116	.037	-3.095	.002
X11	Artwork x exciting new products	.109	.036	3.031	.003
X12	Shopping window width x dummy students	-.104	.038	-2.726	.007
X13	Market segment x dummy students	.101	.049	2.040	.042
X14	De Arena x dummy employed	-.099	.037	-2.691	.007
X15	Food and drinks x shopping motivation	.097	.044	2.190	.029
X16	Gender	.089	.040	2.217	.027

There are many variables which contribute statistically significant to sense of place. However, there are differences in the contribution to sense of place (Figure 6.3.9). The Figure shows that the interaction variable True pleasure contribute the most to sense of place (*b* = -.265) and the variable Gender the least (*b* = .089).
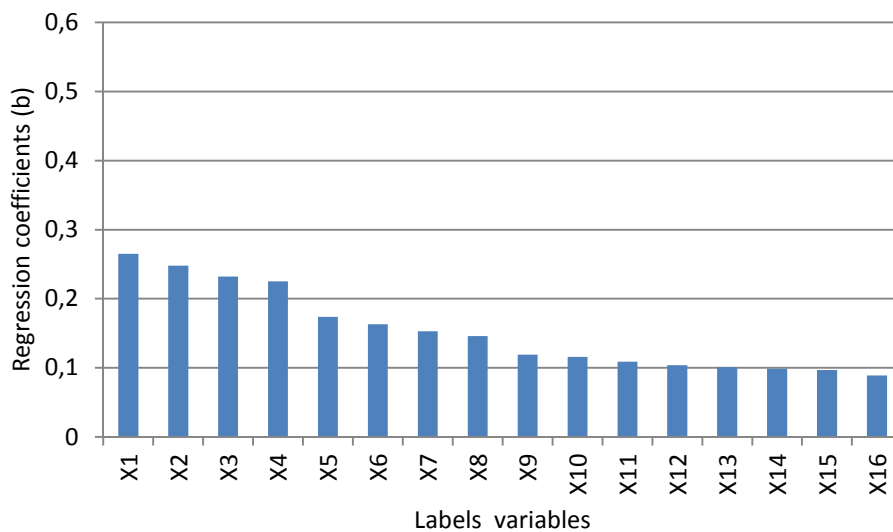
Figure 6.3.9: Estimated coefficients of the independent contribution of the variables to sense of place

6.3.5.   Relationship between general judgment and sense of place

The variable general judgment is transformed into a dichotomous variable. To test whether there are statistically significant differences between a 'low' and 'high' general judgment of the shopping location in relation to sense of place (and place constructs), independent t-tests have been used (Appendix I; Table I.2). For every t-test the following statement can be made: a low general judgment relates to a statistically significant higher sense of place (or place construct) compared to a high general judgment (Figure 6.3.10). A low general judgment has a statistically significant higher place attachment, place identity, place dependence and sense of place compared to a high general judgment.
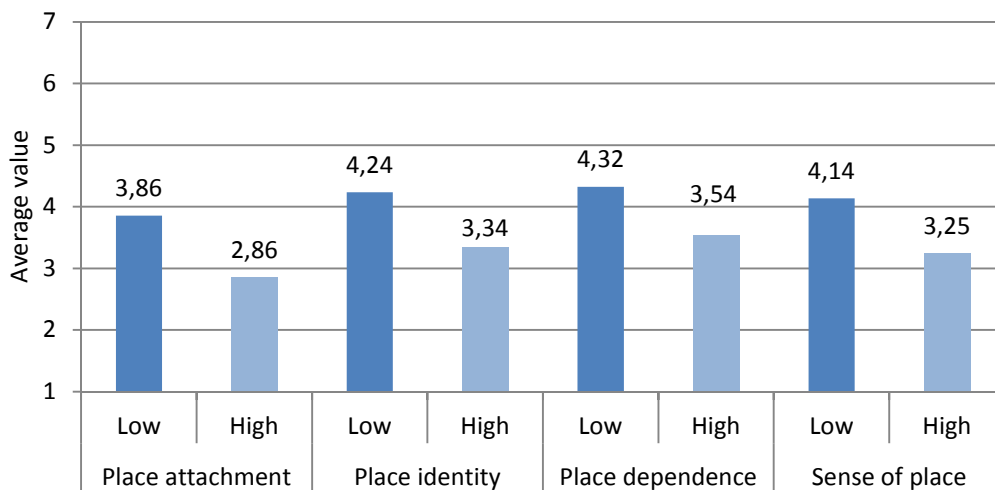
Figure 6.3.10: Average value sense of place and place constructs by a 'low' and 'high' general judgment

There are statistically significant differences between the categories of general judgment in relation to sense of place. However, the exact relationship between sense of place and the general judgment is not determined. To determine the relationship between a dichotomous variable (general judgment) and a continuous variable (sense of place) logistic regression analysis is used (Table 6.3.5). In logistic regression, instead of predicting the value of a dependent variable from independent variables, the probability of the dependent variable being 'high' or 'low' is predicted by means of the known values of the independent variables. Logistic regression is used to predict the odds (Exp(B)) of low and high general judgment based on the independent variable (sense of place). The odds are defined as the probability of a high general judgment divided by the probability of a low general judgment.

Table 6.3.5: Variables in equation logistic regression analysis

	Regression coefficient	S.E.	Wald	df	*p*-value	Exp(B)
Constant	3.502	.320	119.641	1	.000	33.168
Sense of place	-.830	.083	100.637	1	.000	.436

The odds value of Exp(B) = .436 indicates that if the sense of place increases, the probability of a high general judgment is lower compared to the probability of a low general judgment. The higher the sense of place score, the higher the probability of a low general judgment. This is remarkable, it was expected that a higher general judgment could correspond to a higher sense of place. Derived from the regression models the trend is that sense of place depends on the consumers' shopping motivation. Utilitarian shoppers have a higher sense of place compared to hedonic shoppers. However, utilitarian shoppers does not judge the shopping locations different than hedonic shoppers (Table 6.3.6). There are no significant differences between utilitarian shoppers and hedonic shoppers in relation to the general judgment on a locational level (Appendix I; Table I.3). This indicates that differences in sense of place does not mean that there are differences in the general judgment.

Table 6.3.6: Differences between utilitarian and hedonic shoppers in relation to the general judgment

Shopping motivation	Mean general judgment	Mean difference between utilitarian and hedonic	*p*-value[1]
Utilitarian	5.58		
Hedonic	5.60	0.02	0.754

1. Determined with Mann-Whitney U test

The variable Frequency of visiting has a negative contribution to sense of place. Knowing that hedonic shoppers have a lower sense of place, the question arises if hedonic shoppers visit the locations more frequently compared to utilitarian shoppers. Table 6.3.7 shows that consumers who shop with a hedonic shopping motivation are more likely to visit the locations 'less than monthly' (58.1 percent), followed by 'monthly' (25.7 percent) and 'weekly' (16.2 percent). For utilitarian shoppers however, the differences between the frequencies of visiting the locations is marginal. Utilitarian shoppers shop mostly monthly (38.5 percent), followed by less than monthly (34.3 percent) and weekly (27.2 percent).

Table 6.3.7: How often visit utilitarian and hedonic shoppers the locations

Shopping motivation	Frequency of visiting	Frequency (N)	Percentage (%)
Utilitarian	Less than monthly	73	34.3%
	Monthly	82	38.5%
	Weekly	58	27.2%
Hedonic	Less than monthly	258	58.1%
	Monthly	114	25.7%
	Weekly	72	16.2%

Thus, hedonic shoppers have a lower sense of place compared to utilitarian shoppers. Consumers who frequently visit the locations have a lower sense of place compared to consumers who do not visit the locations frequently. Consumers who visit the locations less frequently are more likely to be hedonic shoppers, but do have a high sense of place. This indicates that the frequency of visiting is not influenced by the shopping motivation, and that sense of place does not lead to more visits and loyalty. However, it should be noted that most of the respondents were non-inhabitants and some of them are visiting the locations for the first time. Not knowing if they will visit the location more often in the future. Because the consumers who shop with a hedonic shopping motivation have a low sense of place, the probability for a high general judgment is higher compared to a low general judgment. Furthermore, the consumers who shop with a hedonic shopping motivation is the majority of the respondents (52 percent in Maastricht and 45 percent in 's-Hertogenbosch) and therefore it is not obvious to improve sense of place. However, if the shopping location attract more utilitarian shoppers, it is more obvious to improve sense of place.

6.4.   Conclusion

There is a negative relationship between the general judgment and sense of place of the shopping locations under investigation. A logistic regression analysis determined that the probability of a 'high general judgment' compared to a 'low general judgment' is higher if the sense of place is lower. As a result, the higher the sense of place, the higher the chance of a low general judgment. This negative relationship is weak and there is no clear explanation for this unexpected result.

Sense of place can be considered as the average value of place attachment, place identity and place dependence. Furthermore, the place constructs relate positively to each other.

CHAID decision tree analysis are used to determine which independent variables are relevant to the dependent variables and split the independent variables in statistically significant different groups. As a result, the independent variables are transformed into effect variables. The transformed variables are used in multiple regression analysis to determine the contribution of the variable to the dependent variable. Regression models can be used to elicit relations between a set of independent variables and a dependent variable. For sense of place and the place constructs, seven regression models have been built to distinguish the variables which contribute to the dependent variable. The regression models cannot explain the variance of the dependent variables very well (Figure 6.3.8). The low R-square values indicate that sense of place, place attachment, place identity and place dependence is hard to predict with the variables used in this research. The differences between the regression models indicate that personal characteristics are most important in the determination of sense of place and its place constructs. Besides the personal characteristics the interactions with the physical characteristic variables are important. The interaction variables indicate that the physical characteristics of shopping locations are valued differently depending on the personal characteristics of the respondents. The seventh regression model is the best predictor for the dependent variables. The seventh regression model contains personal characteristics, physical characteristics and interactions between personal and physical characteristics.

Place attachment

If place attachment is high, the place gives the respondents a feeling of relaxation or a happy feeling. Shopping locations with shops in the 'middle' market segment have a higher place attachment compared to other 'high' or 'exclusive' market segments. In addition, old respondents value the presence of shops in the middle market segment higher than young respondents. Respondents who love to shop often find shopping a true pleasure, adventurous and enjoyable. However, respondents who love to shop have a lower place attachment compared to respondents who do not love to shop. This can be explained because respondent who love to shop, shop at multiple locations and are not tied to a single shopping location. Furthermore, the variable Shopping motivation influences place attachment negatively which indicates that respondents who shop with an utilitarian shopping motivation are more attached to the shopping locations compared to respondents shopping with a hedonic shopping motivation. Respondents with a hedonic shopping motivation value the presence of food and drink options higher compared to respondents who shop with an utilitarian shopping motivation. Historical shopping locations have a positive influence on place attachment; however, old respondents are more attached to the historical locations compared to young respondents. Human scale is important for the attachment of respondents to the locations. When the buildings in the shopping locations are higher than 9 meter, the place attachment is lower compared to locations with smaller buildings. Older respondents are more attached to shopping locations compared to younger respondents, this can indicate that the emotional bond develops over time. The presence of trees is also a predictor of a high place attachment; furthermore, respondents with a high income value the presence of trees higher compared to respondents with a low income.

Place identity

Place identity is referred to as a symbolic connection between a person and a place. Respondents who love to shop (e.g. positive value of variables True pleasure, Adventurous feeling and Comparison enjoyable) have a lower place identity compared to other respondents. However, respondents who love to delve into exciting new products have a higher place identity compared to other respondents. In addition, respondents who often visit the location have a lower place identity than respondents who do not visit the location frequently, which is in contrast to the literature where sense of place leads to loyalty and future returns. This can be explained because people who shop frequently, shop on multiple locations and therefore do not identify themselves with a single shopping location. This is also indicated by the variable Shopping motivation, where respondents with a hedonic shopping motivation have a lower place identity compared to respondents with an utilitarian shopping motivation. Female respondents have a higher place identity compared to male respondents. Respondents who love to delve into exciting new products are more attached to artwork compared to other respondents. In addition, inhabitants of the city value the presence of artwork higher compared to non-inhabitants. Shopping locations with shops in the middle market segment have a higher place identity than other shopping locations. Furthermore, shopping locations with a higher percentage of affiliates have higher place identity compared to locations with low percentage of affiliates. The most remarkable predictor is the variable Historical. Locations with historical buildings have a lower place identity compared to shopping locations with modern buildings. In addition, old respondents value historical buildings even lower compared to young respondents in relation to place identity. This indicates that respondent get a happy and relaxed feeling of historical buildings but do not identify themselves with the buildings.

Place dependence

The place dependence is more a behavioral component of sense of place and is more indicated by functional characteristics. Comparable to place attachment and place identity, respondents who love to shop have a lower place dependence compared to other respondents. Also, shopping locations with shops in the middle market segment have a higher place dependence compared to other shopping locations. Although respondents who love to shop have a low place dependence, respondents who love to delve into exciting new products value the presence of food and drink options and artwork positively. The variable Shopping motivation has a negative influence on place dependence. Respondents who shop with an utilitarian shopping motivation are more dependent on the locations compared to respondent who shop with a hedonic shopping motivation. This can be explained because respondents who shop with a goal (utilitarian) are specifically aiming to achieve that goal and know to which location to go. Female respondents are more dependent on shopping locations compared to male respondents.

Sense of place

Sense of place consists of place attachment, place identity and place dependence. Therefore, sense of place is a mix of the variables which contribute to the place constructs. Sense of place contains emotional variables, symbolic variables and functional variables. The variable market segment has a negative contribution to sense of place, indicating that respondents sense a place better when the shops located in the shopping location are in the 'middle' market segment compared to shopping locations with 'high' or 'exclusive' market segmented shops. The middle market segment is more accessible to the mass consumer and therefore important in shopping locations. However, the market segment is valued differently depending on the age of the respondents. Old respondents value market shops in the middle market segment higher than young respondents. The contribution of the personal characteristics True pleasure, Adventurous feeling and Comparison enjoyable to sense of place indicates respondents who love to shop have lower sense of place than respondents who do not love to shop. Furthermore, respondents who frequently visit the location have a lower sense of place. This can be explained because respondent who love to shop or shop frequently, shop on multiple locations and are not bound to a single shopping location. Female respondents have a higher sense of place towards shopping locations compared to male respondents. Furthermore, the presence of trees in a shopping location influences sense of place positively. Shopping locations with historical buildings have a lower

sense of place compared to shopping locations with modern buildings. The presence of food and drink options is valued positively by respondents who shop with a hedonic shopping motivation compared to respondents who shop with an utilitarian shopping motivation.

There is a negative relationship between the general judgment of the location and sense of place. This indicates that a high sense of place corresponds with a low general judgment. Derived from the regression models the trend is that sense of place depends on the consumers' shopping motivation. Hedonic shoppers have a lower sense of place compared to utilitarian shoppers. Utilitarian shopper consciously make the choice to visit the specific location, while hedonic shoppers consciously make the choice to shop (not specific on a location but more in the whole inner-city). The variable Frequency of visiting has a negative contribution to sense of place. This indicates that sense of place does not lead to loyalty and future returns. Because the consumers who shop with a hedonic shopping motivation has a low sense of place, the probability for a high general judgment is higher compared to a low general judgment. Furthermore, the consumers who shop with a hedonic shopping motivation is the majority of the respondents (52 percent in Maastricht and 45 percent in 's-Hertogenbosch) and therefore it is not obvious to improve sense of place. However, if the shopping location attract more utilitarian shoppers, it is more obvious to improve sense of place.

To sum up, the following physical characteristics, personal characteristics and interaction variables which increase sense of place can be distinguished.

Physical characteristics
- The buildings in the shopping locations should be lower than 9 meters to ensure human scale.
- The Stokstraat has a lower sense of place compared to other locations.
- Shops in the middle market segment increase sense of place.
- Locations with more than 6 trees have a higher sense of place compared to other locations.
- Sense of place is higher for non-historical, modern buildings.
- Locations with a high percentage of affiliates have a higher sense of place.
- De Arena has a higher sense of place compared to other locations.

Personal characteristics
- The sense of place of non-inhabitants is higher compared to inhabitants.
- Consumers with an utilitarian shopping motivation have a higher sense of place compared to hedonic shopping motivation.
- Consumers who love to shop have a lower sense of place, this indicates that those consumers are not bound to a single shopping location.
- Consumers with jobs have a higher sense of place compared to other consumers and are thus more tied to single shopping locations.
- Consumers which visit the location with a low frequency have a higher sense of place.
- Old consumers have a higher sense of place compared to young consumers.
- Female consumers have a higher sense of place than male consumers.
- Consumers who love to delve into exciting new products have a high sense of place. They are tied to the locations which make it possible to delve into exciting new products.

Interaction variables
- 's-Hertogenbosch is better valued by younger consumers and Maastricht is better valued by older consumers.
- More than 2 food and drink outlets are better valued by hedonic shoppers and less than 2 food and drink outlets are better valued by utilitarian shoppers.
- High buildings (higher than 9 meters) are better valued by consumers who delve into exciting new products and low buildings (lower than 6 meters) are better valued by the other consumers.

- Locations with more than 6 trees are better valued by high income consumers and locations with less than 6 trees are better valued by low income consumers.
- Consumers who frequently visit the locations attach a higher sense of place value to De Arena than to other locations. Consumers who visit the locations not frequently value De Arena not better than other locations.
- Artwork is better valued by consumers who delve into exciting new products compared to other consumers.
- Consumers with high incomes value locations with more than 2 food and drink outlets better compared to consumers with low incomes.
- Artwork is better valued by inhabitants. Non-inhabitants value the locations without artwork better.
- Consumers who delve into exciting new products value locations with more than 2 food and drink options better compared to other consumers.
- Students value high or exclusive market segment shops better compared to other consumers. Other consumers value middle market segment shops better than students.
- Old consumers value middle market segments better than young consumers. Young consumers value high market segments better than old consumers.
- Old consumers value a low percentage of affiliates better compared to young consumers. Young consumers value a high percentage of affiliates better compared to old consumers.
- Female consumers value 's-Hertogenbosch better than male consumers. Male consumers value Maastricht better than female consumers.
- Consumers with a good mood value a low percentage of affiliates better than consumers with a bad mood. Consumers with a bad mood value high a percentage of affiliates better than consumers with a good mood.
- Female consumers value low buildings better compared to high buildings. Male consumers value high buildings better compared to low buildings.
- Students value small shopping windows better compared to wide shopping windows.
- Non-employed consumers value De Arena better compared to employed consumers.
- Consumers with high incomes value small shopping windows better than low income consumers. Low income consumers value wide shopping windows better than high income consumers.
- Employed consumers value locations without food and drink outlets better than non-employed consumers. Non-employed consumers value locations with more than 2 food and drink outlets better than employed consumers.
- Young consumers value historical buildings better than old consumers. Old consumers value modern buildings better than young consumers.
- Consumers who love to shop value outdoor areas better compared to indoor areas. Consumers who do not love to shop value indoor areas better.
- Employed consumers value small shopping windows better compared to wide shopping windows. Non-employed consumers value wide shopping window better compared to small shopping windows.
- Male consumers value food and drink outlets better than female consumers. Female consumers value no food and drink outlets better than male consumers.

7. Conclusions and discussion

7.1.   Conclusions

The central question of this research is: *"What is the relationship between the general judgment of shopping locations and sense of place, and how can sense of place be improved?"* The first part of the question is to determine the relationship between the general judgment of the locations and sense of place. The second part determines which personal characteristics, physical characteristics and interactions between personal and physical characteristics contribute to sense of place in order to provide insight in how to adjust the location in order to increase sense of place.

Sense of place is a set of bonds between an individual and a place that include affective, cognitive and behavioral components. Sense of place consists of three place constructs: place attachment, place identity and place dependence. Place attachment can be defined in terms of an individual's affective or emotional connection to a spatial setting. Place identity can be regarded as an individual's cognitions, beliefs, perceptions or thoughts that the self is reflected by a particular spatial setting. Place dependence can be considered as the perceived behavioral advantage of a spatial setting in relation to other settings. Sense of place is measured using a survey comprising questions that indicate the place constructs (see Chapter 4; Table 4.1.1). The survey also contains questions about personal characteristics, shopping motivation and the general judgment of the shopping location.

The general judgment of the location indicates how satisfied respondents are with the shopping location. Analysis to determine the relationship between the general judgment and sense of place show that when sense of place increases, the probability of a high general judgment decreases. This result may be considered unexpected.

Shopping locations contains different categories of physical characteristics: merchandising, accessibility, atmospherics, services, entertainment, food and security. Research suggests that atmospheric characteristics may be more influential to the purchase decision than the product itself. In addition, atmospheric characteristics can be defined as the conscious designing of spaces to create certain buyer effects. Specifically, designing the buying environments to produce specific emotional effects in the buyer that enhance purchase probability. Five broad categories of atmospheric characteristics can be distinguished: external, general interior, layout and design, point-of-purchase and decoration and human. However, the atmospheric characteristics are very general and do not go into detail. For this purpose, the characteristics which are useful and applicable to the survey locations are described and observed more detailed (see Chapter 5; Table 5.2.1). Besides physical characteristics, the personal characteristics of the respondents are asked in the survey. There are observable personal characteristics (Age, Gender and Shopping motivation) and non-observable personal characteristics (Mood, True pleasure, Comparison enjoyable, Exciting new products, Adventurous feeling, Education, Employment, Income, Frequency of visiting and Zip code). The underlying questions for the variables are shown in Appendix K; Table K.1 and Table K.2). To determine which physical and personal characteristics are relevant to sense of place, place attachment, place identity, place dependence and general judgment, CHAID decision tree analysis is used. The analysis distinguished personal and physical characteristics as relevant to a dependent variable, the variables are transformed into effect variables based on the categories determined by the CHAID decision tree (Chapter 6; Table 6.2.1).

The transformed variables, and the interaction variables between personal and physical characteristics are used in multiple regression analyses to determine the contribution to a dependent variable. Interaction variables are the product of a personal characteristics and a physical characteristics. If the interaction variable contributes statistically significant to a dependent variable it indicates that the physical characteristic is valued differently depending on the personal characteristic. Different multiple regression models are determined

which focus on different types of variables. However, the regression models do not explain the variance of the dependent variables very well. Nevertheless, there are differences between the regression models in terms of explained variance. The differences indicates that personal characteristics are more important to sense of place and its place constructs than physical characteristics. This may be explained because the bond between an individual and a place is personal. In addition, the explained variance by the regression models show that the physical characteristics of the shopping locations are valued differently depending on the personal characteristics of the respondents. This indicates that it is important for shopping center managers, developers and investors in retail real estate to know who visit the shopping locations. Based on the target group the physical characteristics can be adjusted to increase sense of place.

Place attachment, place identity and place dependence are statistically significant positively related to each other but are also different. Therefore, the personal, physical and interaction variables which contribute to the dependent variables are determined per place construct.

Place attachment
If place attachment is high, the place gives the respondents a feeling of relaxation or a happy feeling. Shopping locations with shops in the 'middle' market segment have a higher place attachment compared to other 'high' or 'exclusive' market segments. In addition, old respondents value the presence of shops in the middle market segment higher than young respondents. Respondents who love to shop often find shopping a true pleasure, adventurous and enjoyable. However, respondents who love to shop have a lower place attachment compared to respondents who do not love to shop. This can be explained because respondent who love to shop, shop at multiple locations and are not tied to a single shopping location. Furthermore, the variable Shopping motivation influences place attachment negatively which indicates that respondents who shop with an utilitarian shopping motivation are more attached to the shopping locations compared to respondents shopping with a hedonic shopping motivation. Respondents with a hedonic shopping motivation value the presence of food and drink options higher compared to respondents who shop with an utilitarian shopping motivation. Historical shopping locations have a positive influence on place attachment; however, old respondents are more attached to the historical locations compared to young respondents. Human scale is important for the attachment of respondents to the locations. When the buildings in the shopping locations are higher than 9 meter, the place attachment is lower compared to locations with smaller buildings. Older respondents are more attached to shopping locations compared to younger respondents, this can indicate that the emotional bond develops over time. The presence of trees is also a predictor of a high place attachment; furthermore, respondents with a high income value the presence of trees higher compared to respondents with a low income.

Place identity
Place identity is referred to as a symbolic connection between a person and a place. Respondents who love to shop (e.g. positive value of variables True pleasure, Adventurous feeling and Comparison enjoyable) have a lower place identity compared to other respondents. However, respondents who love to delve into exciting new products have a higher place identity compared to other respondents. In addition, respondents who often visit the location have a lower place identity than respondents who do not visit the location frequently. This can be explained because people who shop frequently, shop on multiple locations and therefore do not identify themselves with a single shopping location. This is also indicated by the variable Shopping motivation, where respondents with a hedonic shopping motivation have a lower place identity compared to respondents with an utilitarian shopping motivation. Female respondents have a higher place identity compared to male respondents. Respondents who love to delve into exciting new products are more attached to artwork compared to other respondents. In addition, inhabitants of the city value the presence of artwork higher compared to non-inhabitants. Shopping locations with shops in the middle market segment have a higher place identity than other shopping locations. Furthermore, shopping locations with a higher percentage of affiliates have higher place identity compared to locations with low percentage of affiliates. The most

remarkable predictor is the variable Historical. Locations with historical buildings have a lower place identity compared to shopping locations with modern buildings. In addition, old respondents value historical buildings even lower compared to young respondents in relation to place identity. This indicates that respondent get a happy and relaxed feeling of historical buildings but do not identify themselves with the buildings.

Place dependence

The place dependence is more a behavioral component of sense of place and is more indicated by functional characteristics. Comparable to place attachment and place identity, respondents who love to shop have a lower place dependence compared to other respondents. Also, shopping locations with shops in the middle market segment have a higher place dependence compared to other shopping locations. Although respondents who love to shop have a low place dependence, respondents who love to delve into exciting new products value the presence of food and drink options and artwork positively. The variable Shopping motivation has a negative influence on place dependence. Respondents who shop with an utilitarian shopping motivation are more dependent on the locations compared to respondent who shop with a hedonic shopping motivation. This can be explained because respondents who shop with a goal (utilitarian) are specifically aiming to achieve that goal and know to which location to go. Female respondents are more dependent on shopping locations compared to male respondents.

Sense of place

Sense of place consists of place attachment, place identity and place dependence. Therefore, sense of place is a mix of the variables which contribute to the place constructs. Sense of place contains emotional variables, symbolic variables and functional variables. The variable market segment has a negative contribution to sense of place, indicating that respondents sense a place better when the shops located in the shopping location are in the 'middle' market segment compared to shopping locations with 'high' or 'exclusive' market segmented shops. The middle market segment is more accessible to the mass consumer and therefore important in shopping locations. However, the market segment is valued differently depending on the age of the respondents. Old respondents value market shops in the middle market segment higher than young respondents. The contribution of the personal characteristics True pleasure, Adventurous feeling and Comparison enjoyable to sense of place indicates respondents who love to shop have lower sense of place than respondents who do not love to shop. This can be explained because respondent who love to shop or frequently visit the location, shop on multiple locations and are not bound to a single shopping location. Female respondents have a higher sense of place towards shopping locations compared to male respondents. Furthermore, the presence of trees in a shopping location influences sense of place positively. Shopping locations with historical buildings have a lower sense of place compared to shopping locations with modern buildings. The presence of food and drink options is valued positively by respondents who shop with a hedonic shopping motivation compared to respondents who shop with an utilitarian shopping motivation.

There is a negative relationship between the general judgment of the location and sense of place. This indicates that a high sense of place corresponds with a low general judgment. Derived from the regression models the trend is that sense of place depends on the consumers' shopping motivation. Hedonic shoppers have a lower sense of place compared to utilitarian shoppers. Utilitarian shopper consciously make the choice to visit the specific location, while hedonic shoppers consciously make the choice to shop (not specific on a location but more in the whole inner-city). The variable Frequency of visiting has a negative contribution to sense of place. This indicates that sense of place does not lead to loyalty and future returns. Because the consumers who shop with a hedonic shopping motivation has a low sense of place, the probability for a high general judgment is higher compared to a low general judgment. Furthermore, the consumers who shop with a hedonic shopping motivation is the majority of the respondents (52 percent in Maastricht and 45 percent in 's-Hertogenbosch) and therefore it is not obvious to improve sense of place. However, if the shopping location attract more utilitarian shoppers, it is more obvious to improve sense of place.

7.2.   Discussion

A number of physical characteristics used in the regression models do not vary a lot. For example, the color of the flooring can be red or grey. Grey floorings indicate that the floor is grey, but it also indicates the city Maastricht. In Maastricht, all the floorings in the different locations have a grey color. All floorings in the 's-Hertogenbosch locations have red colors. Thus the variable 'color of the flooring' is multiple interpretable. The material of the flooring, in this research cobble stones or clinkers, is also multiple interpretable. Only the Stokstraat has cobble stones as flooring, thus the variable can also be an indicator for the Stokstraat. The variable the presence of water has the same problem because De Arena is the only location with a water facility. When there would have been more variation in terms of locations and cities, the effects of more physical characteristics might have been detected. In addition, when there are more locations and cities included in the research, the variable general judgment may be normally distributed. When a variable is normally distributed, more statistical analysis are applicable and relations can be determined with more certainty.

The relationship between sense of place and the general judgment of the location is negative. Consumers who love to shop have lower sense of place compared to consumers who do not love to shop. This can be explained because consumers shop on multiple locations in multiple cities and are not really attached, identified or dependent on one specific location. It can be that consumers are attached, dependent or identify themselves with a city rather than a location within the city. Sense of place needs to be researched at a higher level or scale, comparing inner-cities or whole shopping areas instead of individual shopping locations. In addition, try to identify why consumers visit the one city and not another. For this approach it is necessary to interview the consumers before the actually shop, thus when they make the decision to shop. When people have a choice to shop in multiple cities, why do they prefer one city over the other? Are they more attached to one city than to another? Which differences are there between the cities, and which atmospheric characteristics contribute to this differences? The image of shopping areas could be investigated as well.

It seems to be the case that physical characteristics do not influence sense of place much. The regression models perform rather poorly, but focus mainly on external atmospherics of the locations. Maybe other shopping location characteristics influence sense of place, such as merchandising, accessibility, services, entertainment, food and security. Determining all these physical characteristics for every shopping location might be leading to better regression models with higher R-square values. Furthermore, much of the atmospherics characteristics can be characterized as in-store. Including the in-store atmospheric elements may also lead to higher R-square values.

This research also distinguished that personal characteristics are very important in the experience of the locations and the physical characteristics. To discover the emotional bond between the shopping locations and the consumers, there is a need for more in-depth research. Also the identification of a consumer towards shopping locations may be very personal; a consumer's identity is not predictable by standard personal characteristics. In order to investigate which human personality affects sense of place, a more personal approach may be worthwhile.

Recommendations

The recommendation will give insight in how actors in retail real estate can implement the outcome of this research. This research suggests that sense of place is negatively related to the general judgment of the locations. However, further research is needed (see discussion) on more different locations and also at the level of entire inner-city shopping areas. Probably, it will provide more insight in the relationship between sense of place and the general judgment. The research shows that physical characteristics, personal characteristics and interaction variables between personal and physical characteristics contribute to sense of place. The personal characteristics and interaction variable contribute the most to sense of place in shopping locations. Physical characteristics influence sense of place only marginally compared to the personal characteristics. The main recommendation is to focus on the personal characteristics of the target group. It is necessary to know which types of consumers visit the locations and how to adjust the physical characteristics that sense of place will increase. For hedonic shoppers it is not obvious to improve sense of place, for utilitarian shoppers it is more obvious. However, the majority of the visitors shop with a hedonic shopping motivation. Developers, designers, shopping center managers, and other stakeholders should realize that improving consumers' sense of place does not mean improving consumers' judgment of a shopping location. There is a weak, but significant negative relationship between sense of place and general judgment. However, if they want to improve consumers' sense of place, the following recommendations could be put into practice.

Developers

Developers should develop buildings which can facilitate affiliates and shops in the middle market segment. The locations should have trees, the buildings must be modern and lower than 9 meters. However, physical characteristics are valued different depending on the personal characteristics of the consumers. Therefore, the developer needs to know which type of consumers will visit the location or new development.

Managers

Property managers are the intermediary between the tenant and the property owner. The property manager needs to focus on renting the property to shops in the middle market segment and shops which are affiliates. At least 82 percent of the retailers should be affiliates. Furthermore, it is very important for property managers to know which type of consumers visit the location because physical characteristics of the shopping locations are valued differently depending on the personal characteristics. For young respondents, the need for shops in the high or exclusive market segments is more important than for old respondents. For managers it is necessary to cluster retailers in terms of market segment.

Investors

For investors it is important to know in which properties they need to invest. Properties with a high sense of place are modern and lower than 9 meters. The retailers renting the units need to be in the middle market segment. A high percentage of the renters need to be affiliates and a few food and drink outlets should be available. Furthermore, it is necessary to know which types of consumers visit the location. Physical characteristics are valued differently depending on the personal characteristics of consumers. Consumers with an utilitarian shopping motivation have a higher sense of place compared to hedonic shopping motivation. Therefore, the location should have a good mix of shops targeting for utilitarian and hedonic shoppers.

Retailers

Although sense of place is influenced depending on market segment and percentage of affiliates, it is important to know for a retailer which physical characteristics positively influence the sense of place experienced by their target group. It will help the retailers in finding the right properties to rent. Modern buildings, surrounded by food and drinks options, low buildings, trees and other comparable (market segment) retailers in the surrounding may improve sense of place. Depending on the target group, the retailer can implement wide or small shopping windows. Students, employed consumers and consumers with a high income value small shopping windows higher.

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Appendices

Appendix A: Shopping center characteristics

Table A.1: Shopping center characteristics (Sit et al., 2003)

Grouping	Items
Merchandising	A good choice of brands
	Stores stock my preferred brands
	Good range of products
Macro-accessibility	Close to home
	Good condition of access roads
Micro-accessibility	Adequate parking space
	Easily find the entrances and exits to the center
	Easy to get around within the center
	Trading hours are appropriate to me
Personal service	Assistance at information desk
	Courtesy at information desk
	Prompt service at information desk
	Knowledge of employees at information desk
	Neat uniform of employee at information desk
	Helpfulness of center management
	Positive attitude of center management
Amenities	Clean restrooms
	Easy to find the restrooms
	Restrooms are conveniently located
	Overall cleanliness of the center
Ambulance	Adequate escalators
	Adequate lifts
	Directory sign boards
	Center brochure
Atmospherics	Pleasant background music
	Fashionable color scheme
	Modern décor
	Well-lit
	Air-conditioned
Specialty entertainment	Specific venues for entertainment (i.e. cinemas and game zones)
Special event entertainment	Occasional entertainment (i.e. fashion shows and lucky draws)
Food	Food court
Security	Safety of my vehicle in car park
	Personal safety in car park
	Personal safety within the center
	Safety of escalators
	Safety of lifts
	Security guards on duty
	Safety in restrooms

Appendix B: Survey (Dutch)

<u>ENQUÊTE AFSTUDEERONDERZOEK CONSUMENTENBELEVING</u>
Wij zijn vier afstudeerstudenten aan de Technische Universiteit en willen u voor ons afstudeerproject graag een aantal vragen stellen.

De enquête betreft deze specifieke locatie.

Bij voorbaat vriendelijk bedankt. Jeffrey, Wouter, Tim en Rick

<u>1. Winkelmotivatie</u>
1. Het doel van mijn bezoek is:
O   Doelgericht winkelen
O   Winkelen voor plezier
O   Beide
O   Anders, namelijk: ………

2. Toen ik ging winkelen, was mijn humeur:
Slecht   O   O   O   O   O   O   O   Goed

In hoeverre bent u het eens met de volgende stellingen?

	Oneens			0			Eens
3. Het winkelen is een waar genoegen	O	O	O	O	O	O	O
4. Vergeleken met andere dingen die ik had kunnen doen, is de tijd die ik aan het winkelen besteed werkelijk plezierig	O	O	O	O	O	O	O
5. Ik vind het leuk om me te verdiepen in spannende nieuwe producten	O	O	O	O	O	O	O
6. Het winkelen geeft mij een avontuurlijk gevoel	O	O	O	O	O	O	O

Vul de volgende drie vragen alleen in als u klaar bent met winkelen.

	Oneens			0			Eens
7. Met het winkelen heb ik precies bereikt wat ik wilde	O	O	O	O	O	O	O
8. Ik heb niet kunnen kopen wat ik werkelijk nodig had	O	O	O	O	O	O	O
9. Tijdens het winkelen heb ik precies die dingen gevonden waarnaar ik op zoek was	O	O	O	O	O	O	O

In welke mate zijn volgende aspecten van toepassing op wat u ervaart / heeft ervaren op deze locatie. Het gaat niet om de winkels die u ziet, maar om de omgeving.

	Helemaal van toepassing ↓			0			Helemaal van toepassing ↓	
10. Oncomfortabel	O	O	O	O	O	O	O	Comfortabel
11. Deprimerend	O	O	O	O	O	O	O	Vrolijk
12. Kleurloos	O	O	O	O	O	O	O	Kleurrijk
13. Saai/Eentonig	O	O	O	O	O	O	O	Levendig

2. Beoordeling aspecten

Hoe beoordeelt u de volgende punten over deze specifieke locatie:

	--			0			++
14. Bereikbaarheid.	O	O	O	O	O	O	O
15. Winkelaanbod.	O	O	O	O	O	O	O
16. De horecagelegenheden (indien aanwezig).	O	O	O	O	O	O	O
17. Vorm van de gevels.	O	O	O	O	O	O	O
18. Materiaalgebruik gevels.	O	O	O	O	O	O	O
19. Materiaalgebruik bestrating.	O	O	O	O	O	O	O
20. Kleurgebruik gevels.	O	O	O	O	O	O	O
21. Kleurgebruik bestrating.	O	O	O	O	O	O	O
22. Hoeveelheid licht.	O	O	O	O	O	O	O
23. De achtergrondgeluiden.	O	O	O	O	O	O	O
24. De muziek (indien aanwezig).	O	O	O	O	O	O	O
25. De geur in de winkelstraat.	O	O	O	O	O	O	O
26. Het feit dat de straat niet/wel overdekt is.	O	O	O	O	O	O	O
27. Groenvoorzieningen.	O	O	O	O	O	O	O
28. Meubilair in de straat.	O	O	O	O	O	O	O
29. Winkeletalages.	O	O	O	O	O	O	O
30. De reclame in de straat.	O	O	O	O	O	O	O
31. Netheid.	O	O	O	O	O	O	O
32. Breedte van de winkelstraat.	O	O	O	O	O	O	O
33. Hoogte van de gebouwen in de winkelstraat.	O	O	O	O	O	O	O
34. Breedte-hoogteverhouding winkelstraat.	O	O	O	O	O	O	O
35. Het druktebeeld.	O	O	O	O	O	O	O
36. De andere bezoekers.	O	O	O	O	O	O	O
Vraag 75 en 76 alleen van toepassing op winkelcentrum De Arena / Entre Deux							
75. Kleur van het licht	O	O	O	O	O	O	O
76. Hoogteverschil	O	O	O	O	O	O	O

3. Algemeen oordeel

Hoe bekend bent u met de onderstaande locaties?

	Onbekend			0			Bekend
37. Hinthamerstraat/Maastrichter Brugstraat	O	O	O	O	O	O	O
38. Kerkstraat/Stokstraat	O	O	O	O	O	O	O
39. De Arena/Entre Deux	O	O	O	O	O	O	O
40. Burgemeester Loeffplein/Mosea Forum	O	O	O	O	O	O	O

Wat is uw algemeen oordeel van de onderstaande locaties?

	Negatief			0			Positief
41. Hinthamerstraat/Maastrichter Brugstraat	O	O	O	O	O	O	O
42. Kerkstraat/Stokstraat	O	O	O	O	O	O	O
43. De Arena/Entre Deux	O	O	O	O	O	O	O
44. Burgemeester Loeffplein/Mosea Forum	O	O	O	O	O	O	O

45. Op welke locatie verblijft u het liefst? Geef dit aan met de cijfers 1 (eerste keuze) t/m 4 (laatste keuze).

………. Hinthamerstraat/Maastrichter Brugstraat

………. Kerkstraat/Stokstraat

………. De Arena/Entre Deux

………. Burgemeester Loeffplein/Mosea Forum

46. Wat is de voornaamste reden voor uw voorkeur?

…….

…….

47. Welke locatie vindt u het meest sfeervol? Geef dit aan met de cijfers 1 (eerste keuze) t/m 4 (laatste keuze).

………. Hinthamerstraat/Maastrichter Brugstraat

………. Kerkstraat/Stokstraat

………. De Arena/Entre Deux

……. Burgemeester Loeffplein/Mosea Forum

48. En waarom?

…….

…….

4. Sense of place

In hoeverre bent u het eens met de volgende stellingen?

	Oneens			0			Eens
49. Deze locatie geeft mij een ontspannen/relaxed gevoel.	O	O	O	O	O	O	O
50. Deze locatie weerspiegelt het soort persoon dat ik ben.	O	O	O	O	O	O	O
51. Wat mij betreft zijn er betere locaties dan deze locatie.	O	O	O	O	O	O	O
52. Deze locatie geeft mij een gelukkig/blij gevoel.	O	O	O	O	O	O	O
53. Deze locatie geeft mij het gevoel dat ik mezelf kan zijn.	O	O	O	O	O	O	O
54. Deze locatie vervult mijn behoefte beter dan elke andere locatie.	O	O	O	O	O	O	O
55. Deze locatie is een van mijn favoriete locaties.	O	O	O	O	O	O	O
56. Deze locatie zegt weinig over wie ik ben.	O	O	O	O	O	O	O
57. Deze locatie is de beste locatie om de dingen te doen waar ik het meest van geniet.	O	O	O	O	O	O	O
58. Ik zou deze locatie niet missen als deze er niet meer zou zijn.	O	O	O	O	O	O	O
59. Deze locatie is een goede afspiegeling van mijn identiteit.	O	O	O	O	O	O	O
60. Deze locatie is een goede locatie om de dingen te doen die ik het leukst vind.	O	O	O	O	O	O	O

5. Persoonsinformatie

61. Wat is uw leeftijd?

…….. jaar

62. Wat is uw geslacht?

O Man   O Vrouw

63. Wat is uw postcode?

…………………………………

64. Wat is uw huishoudensamenstelling?

O Alleenstaand zonder kinderen   O Alleenstaand met …. kinderen

O Samenwonend zonder kinderen   O Samenwonend met …. kinderen

O Student   O Anders: ……………………

65. Wat is uw opleidingsniveau

O Basisonderwijs

O Middelbaar onderwijs

O MBO

O HBO

O Universiteit

66. Wat is uw beroepsactiviteit?

O Student   O Werkend   O Werkloos   O Gepensioneerd

67. Wat is het netto maandinkomen van uw huishouden?

O € 1.200 of minder per maand

O € 1.200 tot € 2.000 per maand

O € 2.000 tot € 4.000 per maand

O € 4.000 tot € 6.000 per maand

O € 6.000 tot € 8.000 per maand

O € 8.000 of meer per maand

68. Met wie bent u hier?

O Alleen   O Familie   O Vrienden

69. Samenstelling groep aanwezigen (inclusief uzelf):

Aantal vrouw(en): ……..   Aantal man(nen): ……..   Aantal kind(eren): ……..

70. Hoe bent u hier gekomen?

O Auto   O Fiets   O Openbaar vervoer   O Lopend   O Anders: ……………….

71. Hoe vaak komt u hier om te winkelen?

O 2x per week of meer   O Wekelijks   O 2x per maand   O Maandelijks   O Minder

Hartelijk bedankt voor uw deelname

Wij danken u hartelijk voor uw deelname aan deze enquête. Mocht u geïnteresseerd zijn in de resultaten, vul
dan hier uw e-mailadres in: ……………………………………………………………………………………………

Invullen door enquêteur

72. Drukte in straat: …………………………………………………………………. (foto)

73. Weersomstandigheden: …………………………………………………………………. (foto)

00. Volgnummer:

……	……	……	……	……
Stad	Locatie	Datum	Tijd	Enquêteur

Richtlijnen volgnummer
1.   Stad
        1 = Maastricht
        2 = 's-Hertogenbosch
2.   Locatie als volgt:
        1 = Hinthamerstraat / Maastrichter Brugstraat
        2 = Kerkstraat / Stokstraat
        3 = De Arena / Entre Deux
        4 = Burgemeester Loeffplein / Mosea Forum
3.   Datum als volgt: dag en maand aan elkaar
        →5 juli wordt '0507'
4.   Tijd op het moment van afronden weergeven in uren en
        minuten
        → 12:34u wordt '1234'
5.   Enquêteurnummer weergeven volgens onderstaande lijst:
        1. Boerebach, Jeffrey
        2. Dijkman, Wouter
        3. Op Heij, Tim
        4. Willems, Rick
        5.
        6.
        7.
        8.

Appendix C: Inhabitants
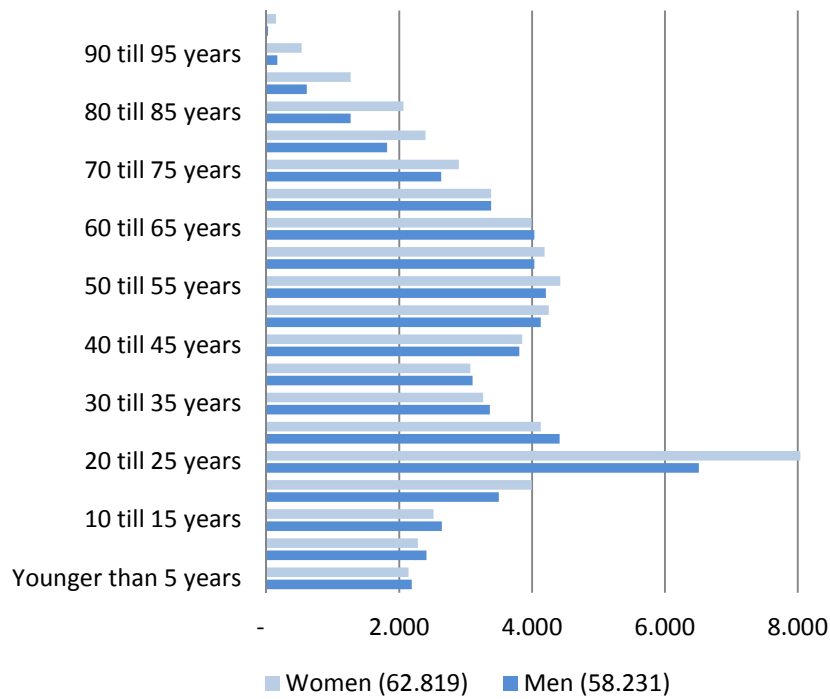
Figure C.1: Age op population by gender Maastricht (CBS, 2012)
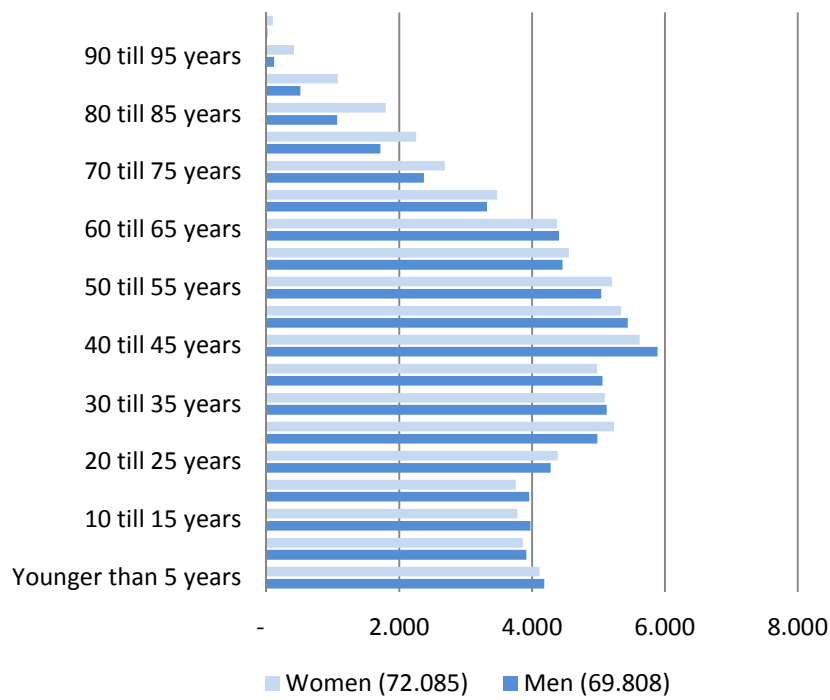
Figure C.2. Population by gender 's-Hertogenbosch(CBS, 2012)

Appendix D: Parking facilities

Table D.1: Capacity and opening hours parking facilities Maastricht

Name	Capacity[1]	Opening hours[2]
OL.Vrouweparking (P1)	350	Monday – Wednesday from 07:00 – 01:00 Thursday – Saturday from 07:00 – 02:30 Sunday from 09:00 – 01:00
Vrijthof (P2)	445	Monday – Wednesday from 07:00 – 01:00 Thursday – Saturday from 07:00 – 02:30 Sunday from 09:00 – 01:00
Mosae forum (P3)	1.082	24 hours / 7 day a week
Bassin (P4)	407	Monday – Saturday from 07:00 – 21:00 Thursday from 07:00 – 22:00 Sunday from 10:00 – 19:00
De Griend (P5)	351	Monday – Friday from 07:00 – 22:00 Saturday from 07:00 – 19:00 Sunday from 11:00 – 18:00
De Colonel (P6)	297	24 hours / 7 days a week
Plein 1992 (P7)	449	Monday – Sunday from 07:00 – 01:00
Bonnefantenmuseum (P8)	303	24 hours / 7 days a week
Sphinx (P+W)	500	Monday – Sunday from 07:00 – 24:00
Cabergerweg (P+W)	698	24 hours / 7 days a week
Stadspark/Kennedybrug (P+W)	416	24 hours / 7 days a week
Noorderbrug (P+W)	158	24 hours / 7 days a week
NS Station Maastricht (P+R)	175	24 hours / 7 days a week

1: Maastricht-bereikbaar.nl (2012)

2: Parkeren-Maastricht.nl (2012)
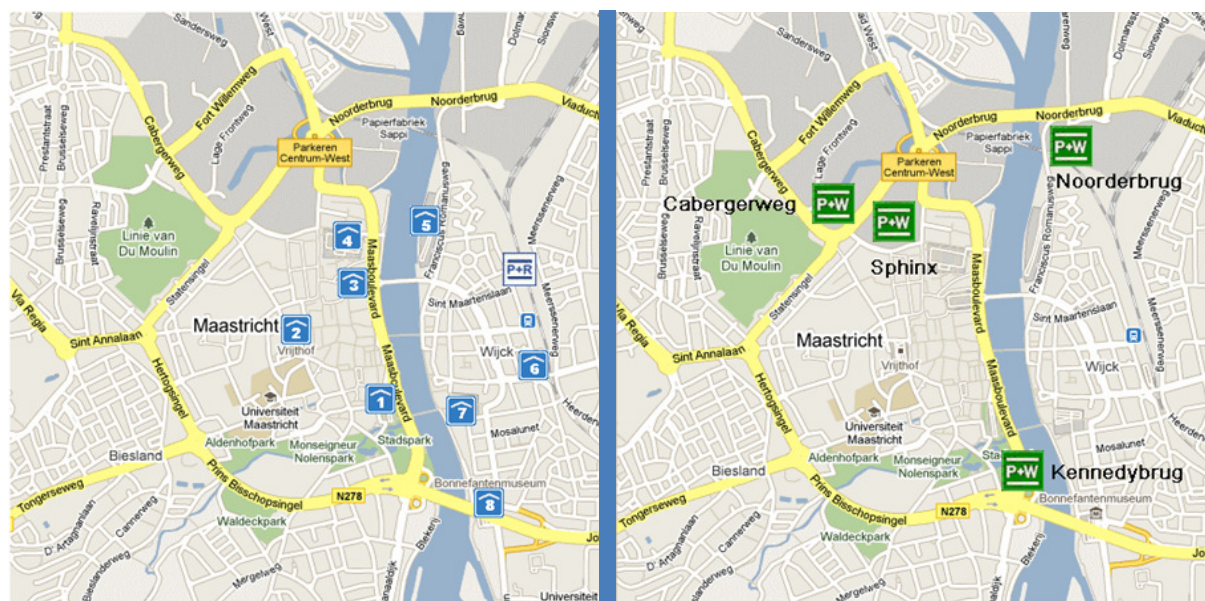
Figure D.1: Locations parking facilities Maastricht (Parkeren-Maastricht.nl, 2012)

Table D.2: Capacity and opening hours parking facilities 's-Hertogenbosch

Name	Capacity	Opening hours[1]
Wolvenhoek (P1)	450[1]	24 hours / 7 days a week
St-Josephstraat (P2)	200[1]	Monday – Friday from 07:00 – 22:00 Saturday from 07:00 – 18:00 Sunday from 09:00 – 18:00
Tolbrug (P3)	324[1]	Monday – Saturday from 07:00 – 21:00 Thursday from 07:00 – 22:00 Sunday from 10:00 – 22:00
Arena (P4)	475[1]	Monday – Saturday from 07:00 – 22:00 Sunday from 10:00 – 18:00
Centraal Station (P5)	250[3]	Monday – Thursday from 05:00 – 02:00 Friday from 05:00 – 03:00 Saturday from 06:00 – 03:00 Sunday from 07:00 – 02:00
Paleiskwartier (P6)	1.079[3]	Monday – Saturday from 07:00 – 21:00 Thursday from 07:00 – 22:00 Sunday from 11:00 – 21:00
De Vliert (P+R)	700[2]	Monday – Wednesday from 06:30 – 20:00 Thursday – Friday from 06:30 – 01:00 Saturday from 07:30 – 01:00 Sunday from 10:00 – 19:00
Pettelaarpark (P+R)	450[2]	Monday – Wednesday from 06:30 – 20:00 Thursday – Friday from 06:30 – 01:00 Saturday from 07:30 – 01:00 Sunday from 10:00 – 19:00
Willemspoort (P+R)	500[2]	Monday – Wednesday from 06:30 – 20:00 Thursday – Friday from 06:30 – 01:00 Saturday from 07:30 – 01:00 Sunday from 10:00 – 19:00

1: Parkeren-DenBosch.nl (2012)

2: Inyourpocket (2012)

3: Parkeerlijn.nl (2012)

Figure D.2: Locations parking facilities (Parkeren-DenBosch.nl, 2012)

Appendix E: Response and non-response

Table E.1: Response in the cities and locations

Response						N	%
Maastricht	474	Maastrichter Brugstraat	109	Male		44	40%
				Female		65	60%
		Stokstraat	126	Male		45	36%
				Female		81	64%
		Entre Deux	115	Male		30	26%
				Female		85	74%
		Mosea Forum	124	Male		34	27%
				Female		90	73%
's-Hertogenbosch	444	Hinthamerstraat	109	Male		34	31%
				Female		75	69%
		Kerkstraat	105	Male		30	29%
				Female		75	71%
		De Arena	115	Male		37	32%
				Female		78	68%
		Burgemeester Loeffplein	115	Male		28	24%
				Female		87	76%

Table E.2: Non-response in the cities and locations

Non-response						N	%
Maastricht	286	Maastrichter Brugstraat	69	Male		25	36%
				Female		44	64%
		Stokstraat	71	Male		31	44%
				Female		40	56%
		Entre Deux	71	Male		28	39%
				Female		43	61%
		Mosea Forum	75	Male		34	45%
				Female		41	55%
's-Hertogenbosch	170	Hinthamerstraat	53	Male		23	43%
				Female		30	57%
		Kerkstraat	34	Male		18	53%
				Female		16	47%
		Arena	31	Male		11	35%
				Female		20	65%
		Burgemeester Loeffplein	52	Male		21	40%
				Female		31	60%

Table E.3 : Shopping motivation Maastricht

	Shopping motivation	N	%	% Maastricht	Difference
Maastricht (All four locations)	Utilitarian	92	19.4%		
	Hedonic	246	51.9%		
	Both	107	22.6%		
	Other	29	6.1%		
Maastrichter Brugstraat	Utilitarian	21	19.3%	19.4%	0.1%
	Hedonic	62	56.9%	51.9%	-5.0%
	Both	22	20.2%	22.6%	2.4%
	Other	4	3.7%	6.1%	2.4%
Stokstraat	Utilitarian	26	20.6%	19.4%	-1.2%
	Hedonic	64	50.8%	51.9%	1.1%
	Both	21	16.7%	22.6%	5.9%
	Other	15	11.9%	6.1%	-5.8%
Entre Deux	Utilitarian	28	24.3%	19.4%	-4.9%
	Hedonic	55	47.8%	51.9%	4.1%
	Both	30	26.1%	22.6%	-3.5%
	Other	2	1.7%	6.1%	4.4%
Mosea Forum	Utilitarian	17	13.7%	19.4%	5.7%
	Hedonic	65	52.4%	51.9%	-0.5%
	Both	34	27.4%	22.6%	-4.8%
	Other	8	6.5%	6.1%	-0.3%

Table E.4 : Shopping motivation 's-Hertogenbosch

	Shopping motivation	N	%	% 's-Hertogenbosch	Difference
's-Hertogenbosch (all four locations)	Utilitarian	122	27.5%		
	Hedonic	201	45.3%		
	Both	93	20.9%		
	Other	28	6.3%		
Hinthamerstraat	Utilitarian	30	27.5%	27.5%	0.0%
	Hedonic	42	38.5%	45.3%	6.7%
	Both	24	22.0%	20.9%	-1.1%
	Other	13	11.9%	6.3%	-5.6%
Kerkstraat	Utilitarian	11	10.5%	27.5%	17.0%
	Hedonic	60	57.1%	45.3%	-11.9%
	Both	24	22.9%	20.9%	-1.9%
	Other	10	9.5%	6.3%	-3.2%
De Arena	Utilitarian	42	36.5%	27.5%	-9.0%
	Hedonic	49	42.6%	45.3%	2.7%
	Both	21	18.3%	20.9%	2.7%
	Other	3	2.6%	6.3%	3.7%
Burgemeester Loeffplein	Utilitarian	39	33.9%	27.5%	-6.4%
	Hedonic	50	43.5%	45.3%	1.8%
	Both	24	20.9%	20.9%	0.1%
	Other	2	1.7%	6.3%	4.6%

Table E.3: Percentage of inhabitants and non-inhabitants per location

City	Location	Inhabitants[1]	N	%	Difference compared to all locations
Maastricht	All locations Maastricht	Yes	142	30.0%	
		No	332	70.0%	
	Maastrichter Brugstraat	Yes	35	32.1%	-2.10%
		No	74	67.9%	2.10%
	Stokstraat	Yes	40	31.7%	-1.70%
		No	86	68.3%	1.70%
	Entre Deux	Yes	32	27.8%	2.20%
		No	83	72.2%	-2.20%
	Mosea Forum	Yes	35	28.2%	1.80%
		No	89	71.8%	-1.80%
's-Hertogenbosch	All locations 's-Hertogenbosch	Yes	162	36.5%	
		No	282	63.5%	
	Hinthamerstraat	Yes	45	41.3%	-4.80%
		No	64	58.7%	4.80%
	Kerkstraat	Yes	27	25.7%	10.80%
		No	78	74.3%	-10.80%
	De Arena	Yes	42	36.5%	0.00%
		No	73	63.5%	0.00%
	Burgemeester Loeffplein	Yes	48	41.7%	-5.20%
		No	67	58.3%	5.20%
All respondents		Yes	304	32.8%	
		No	623	67.2%	

1.   Respondents are inhabitants if their zip code is in the range of zip code range determined by PostNL (2012).

Appendix F: Photographs of the survey locations

Figure F.1: Maastrichter Brugstraat, Maastricht

Figure F.2: Stokstraat, Maastricht

Figure F.3: Entre Deux, Maastricht

Figure F.4: Mosea Forum, Maastricht

Figure F.5: Hinthamerstraat, 's-Hertogenbosch

Figure F.6: Kerkstraat, 's-Hertogenbosch

Figure F.7: De Arena, 's-Hertogenbosch

Figure F.8: Burgemeester Loeffplein, 's-Hertogenbosch

Appendix G: Reliability tests

Table G.1: Place attachment

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.287	.423	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AT1	11.24	7.083	.412	.397	-.082
AT2	10.85	7.038	.510	.468	-.158
AT3	10.28	6.918	.262	.328	.065
AT4	9.82	11.758	-.267	.084	.752

Table G.2: Place identity

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.316	.358	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ID1	11.04	6.127	.447	.415	-.143
ID2	11.09	12.685	-.296	.095	.737
ID3	11.62	7.418	.388	.245	.011
ID4	10.61	6.625	.363	.372	-.014

Table G.3: Place dependence

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.437	.452	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
DE1	11.08	8.011	.525	.458	.076
DE2	10.95	7.134	.577	.539	-.024
DE3	11.24	7.480	.514	.477	.055
DE4	11.63	16.123	-.326	.107	.832

Appendix H: Normal distribution

Table H.1: Normal distribution statistics

		Place attachment	Place identity	Place dependence	Sense of place	General judgment
N	Valid	894	893	894	894	809
	Missing	33	34	33	33	118
Mean		3.26	3.70	3.87	3.61	5.63
Median		3.33	3.67	4.00	3.56	6.00
Mode		2.67	4.00	4.00	4.00	7.00
Std. Deviation		1.14	1.19	1.34	1.12	1.30
Skewness		.348	.124	.228	.161	-.918
Std. Error of Skewness		.082	.082	.082	.082	.086
Kurtosis		.203	.006	-.083	.081	.620
Std. Error of Kurtosis		.163	.163	.163	.163	.172

Table H.2: Mean and standard deviation of the dependent variables

	Place attachment		Place identity		Place dependence		Sense of place		General judgment	
Location	μ	σ	μ	σ	μ	σ	μ	σ	μ	σ
Maastrichter Brugstraat	3.04	1.05	3.45	1.13	3.39	1.26	3.39	1.04	5.63	1.40
Stokstraat	2.63	0.97	3.18	1.14	3.11	1.44	3.11	1.03	6.27	0.94
Entre Deux	3.31	1.05	3.65	1.07	3.56	1.19	3.56	1.00	5.65	1.18
Mosea Forum	3.32	1.13	3.81	1.18	3.65	1.31	3.65	1.12	5.57	1.22
Hinthamerstraat	3.27	1.07	3.67	1.16	3.60	1.25	3.60	1.02	5.77	1.22
Kerkstraat	3.13	0.93	3.53	0.95	3.48	1.13	3.48	0.89	5.57	1.18
De Arena	3.70	1.22	4.11	1.22	4.11	1.46	4.11	1.20	5.66	1.35
Burgemeester Loeffplein	3.73	1.29	4.16	1.33	3.98	1.39	3.98	1.26	4.78	1.42

Appendix I: Correlations

Table I.1: Correlation between place constructs and sense of place

Spearman's rho		Place Attachment	Place identity	Place Dependence	Sense of Place
Place Attachment	Correlation coefficient	1	.741[**]	.695[**]	.883[**]
	p-value	.	.000	.000	.000
	N	894	893	894	894
Place Identity	Correlation coefficient	.741[**]	1	.750[**]	.907[**]
	p-value	.000	.	.000	.000
	N	893	893	893	893
Place Dependence	Correlation coefficient	.695[**]	.750[**]	1	.911[**]
	p-value	.000	.000	.	.000
	N	894	893	894	894
Sense of Place	Correlation coefficient	.883[**]	.907[**]	.911[**]	1
	p-value	.000	.000	.000	.
	N	894	893	894	894

[**]. Correlation is significant at the 0.01 level (2-tailed).

Table I.2: t-tests between the general judgment and sense of place (and place constructs)

Group statistics

	General judgment	N	Mean	Std. Deviation	Std. Error Mean
Place Attachment	Low	310	3.855	1.107	.063
	High	482	2.860	0.999	.046
Place Identity	Low	310	4.237	1.064	.060
	High	481	3.343	1.150	.052
Place Dependence	Low	310	4.324	1.218	.069
	High	482	3.541	1.341	.061
Sense of Place	Low	310	4.139	1.035	.059
	High	482	3.248	1.038	.047

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	*p*-value	t-value	df	*p*-value	Mean Difference	Std. Error Difference
Place Attachment	1.423	.233	13.113	790	.000	.996	.076
Place Identity	0.551	.458	10.982	789	.000	.893	.081
Place Dependence	1.158	.282	8.312	790	.000	.783	.094
Sense of Place	0.011	.918	11.802	790	.000	.891	.075

Table I.3: Average general judgment of the locations by shopping motivation

City	Location	Shopping motivation	General judgment	Difference between utilitarian and hedonic	*p*-value[1]
Maastricht	Maastrichter Brugstraat	Utilitarian	6.10		
		Both	5.67		
		Hedonic	5.41	0.68	0.086
	Stokstraat	Utilitarian	5.88		
		Both	6.60		
		Hedonic	6.28	-0.39	0.109
	Entre Deux	Utilitarian	5.67		
		Both	5.63		
		Hedonic	5.65	0.02	0.852
	Mosea Forum	Utilitarian	5.13		
		Both	5.44		
		Hedonic	5.79	-0.66	0.107
's-Hertogenbosch	Hinthamerstraat	Utilitarian	5.72		
		Both	5.87		
		Hedonic	5.73	0.00	0.877
	Kerkstraat	Utilitarian	5.91		
		Both	5.79		
		Hedonic	5.36	0.55	0.184
	De Arena	Utilitarian	5.73		
		Both	5.90		
		Hedonic	5.47	0.27	0.469
	Burgemeester Loeffplein	Utilitarian	4.83		
		Both	4.61		
		Hedonic	4.80	0.03	0.957

Appendix J: CHAID decision trees
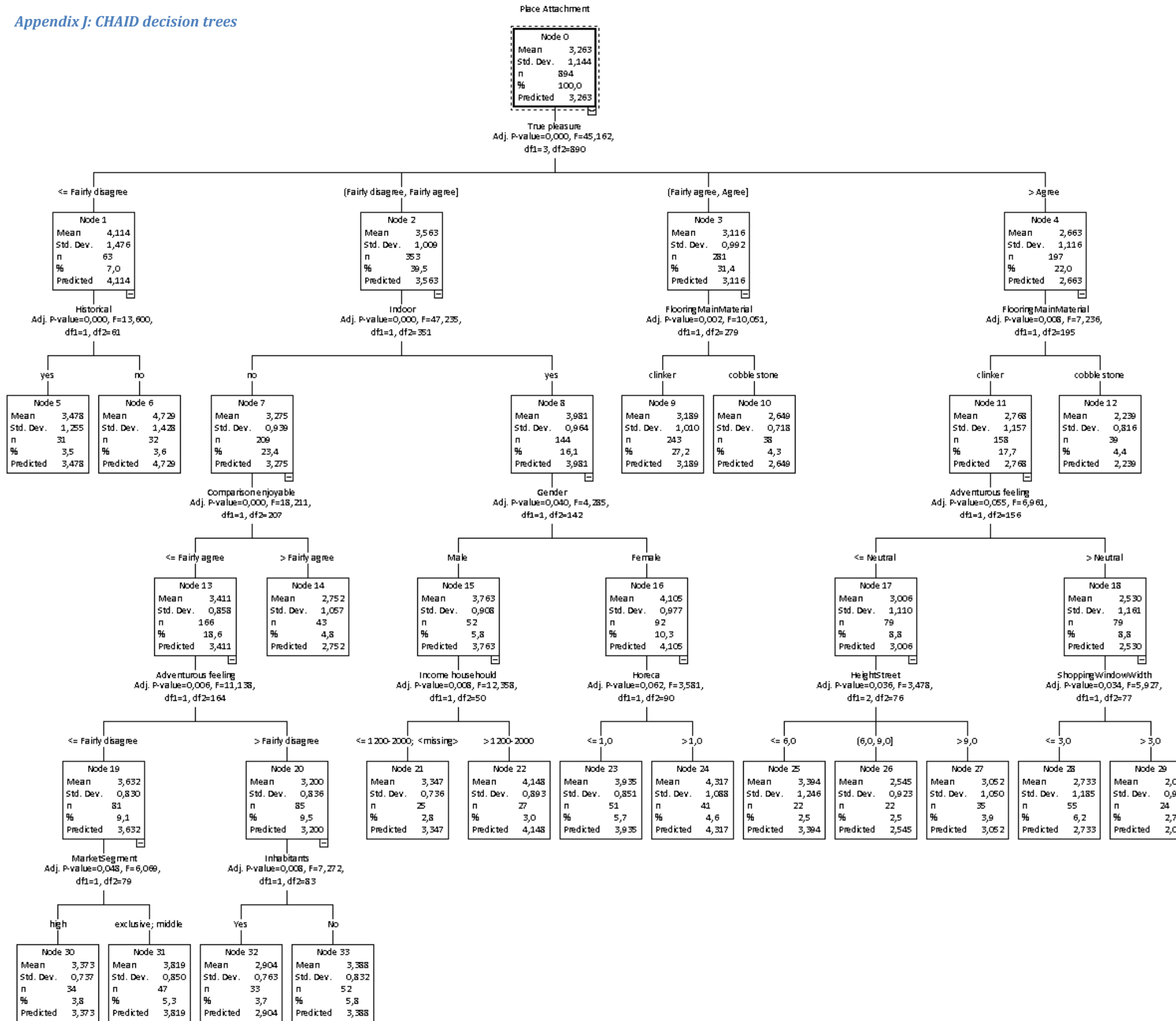
Figure J.1: Place attachment
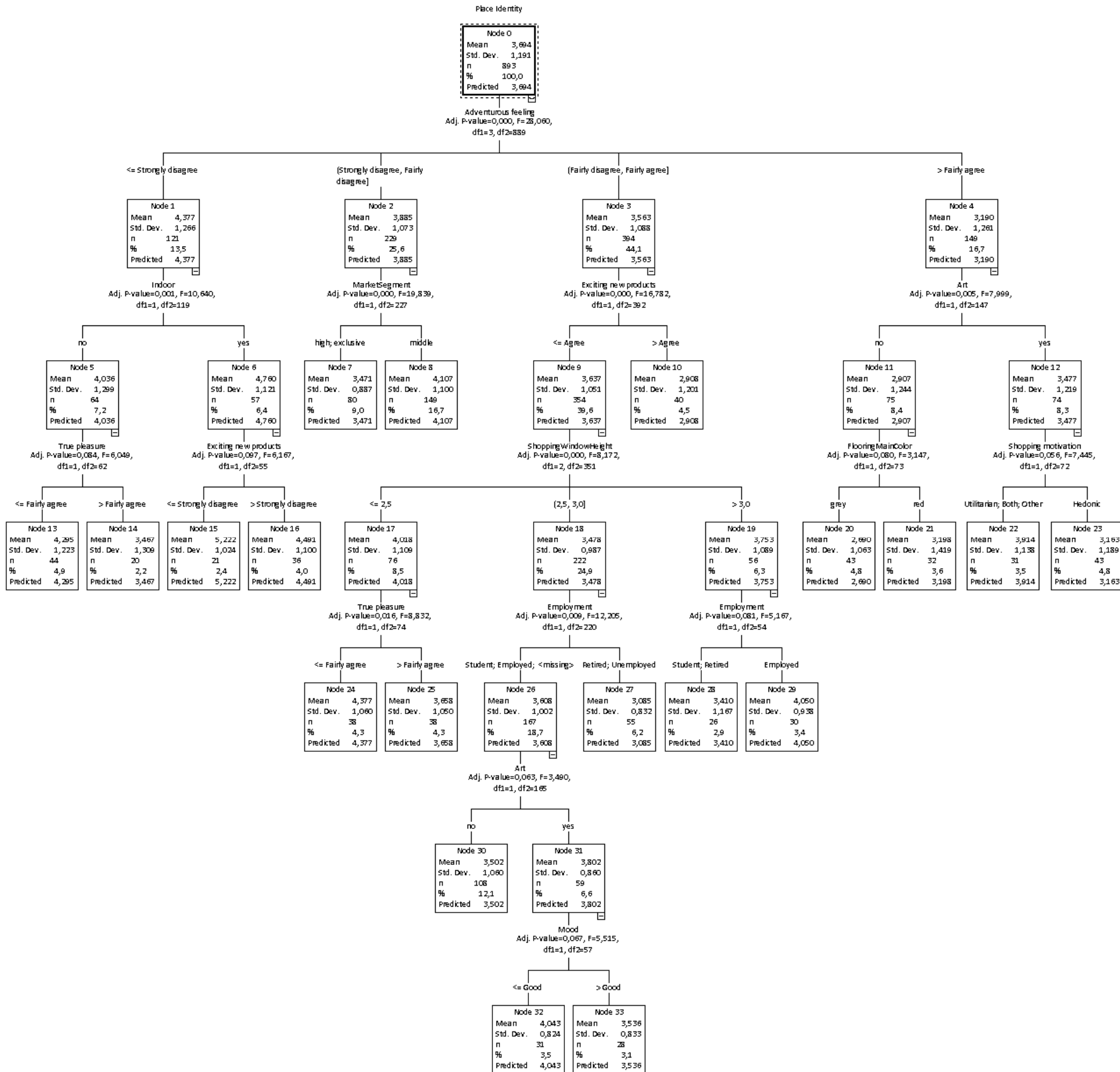
Figure J.2: Place identity
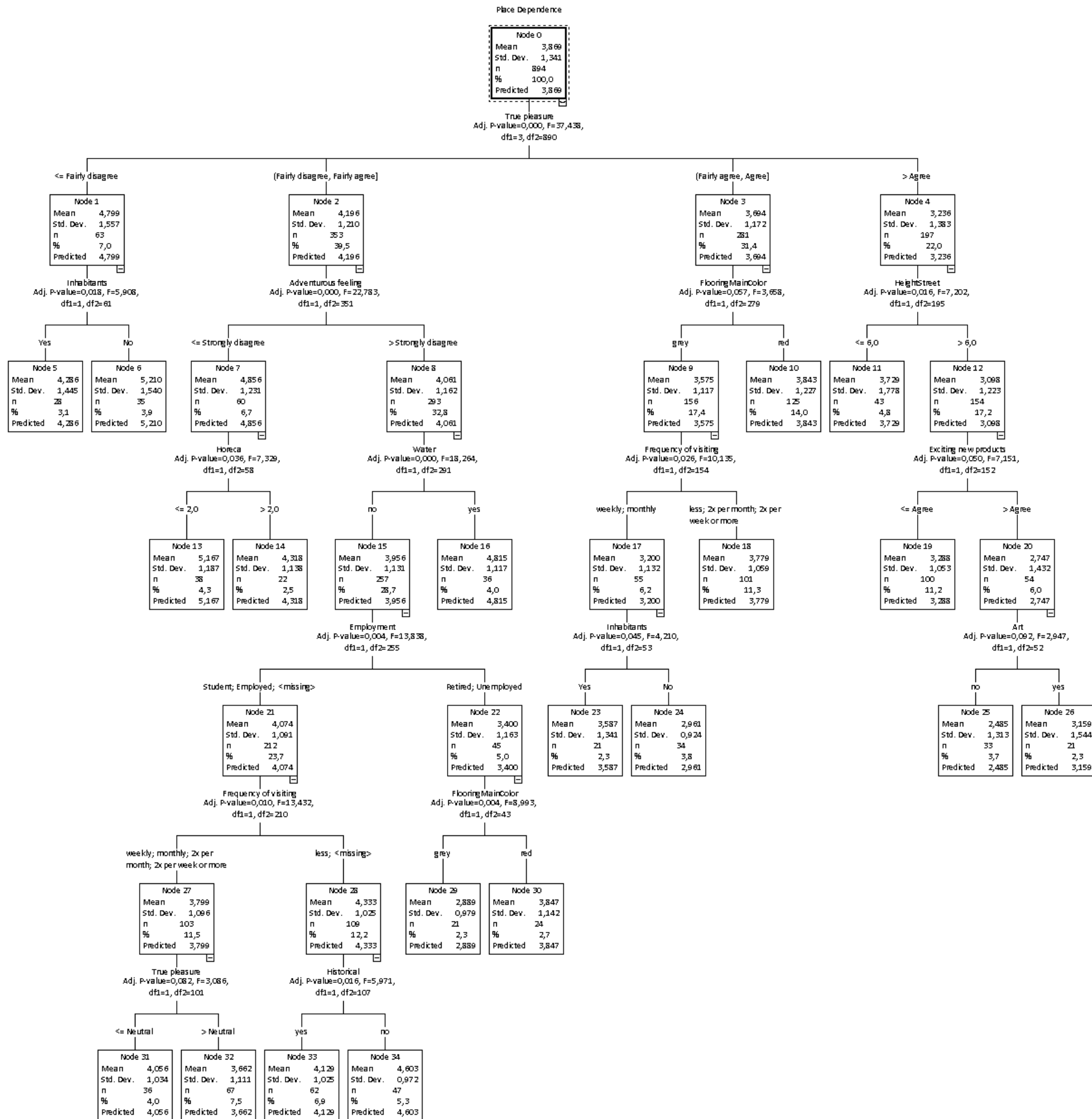
Figure J.3: Place dependence
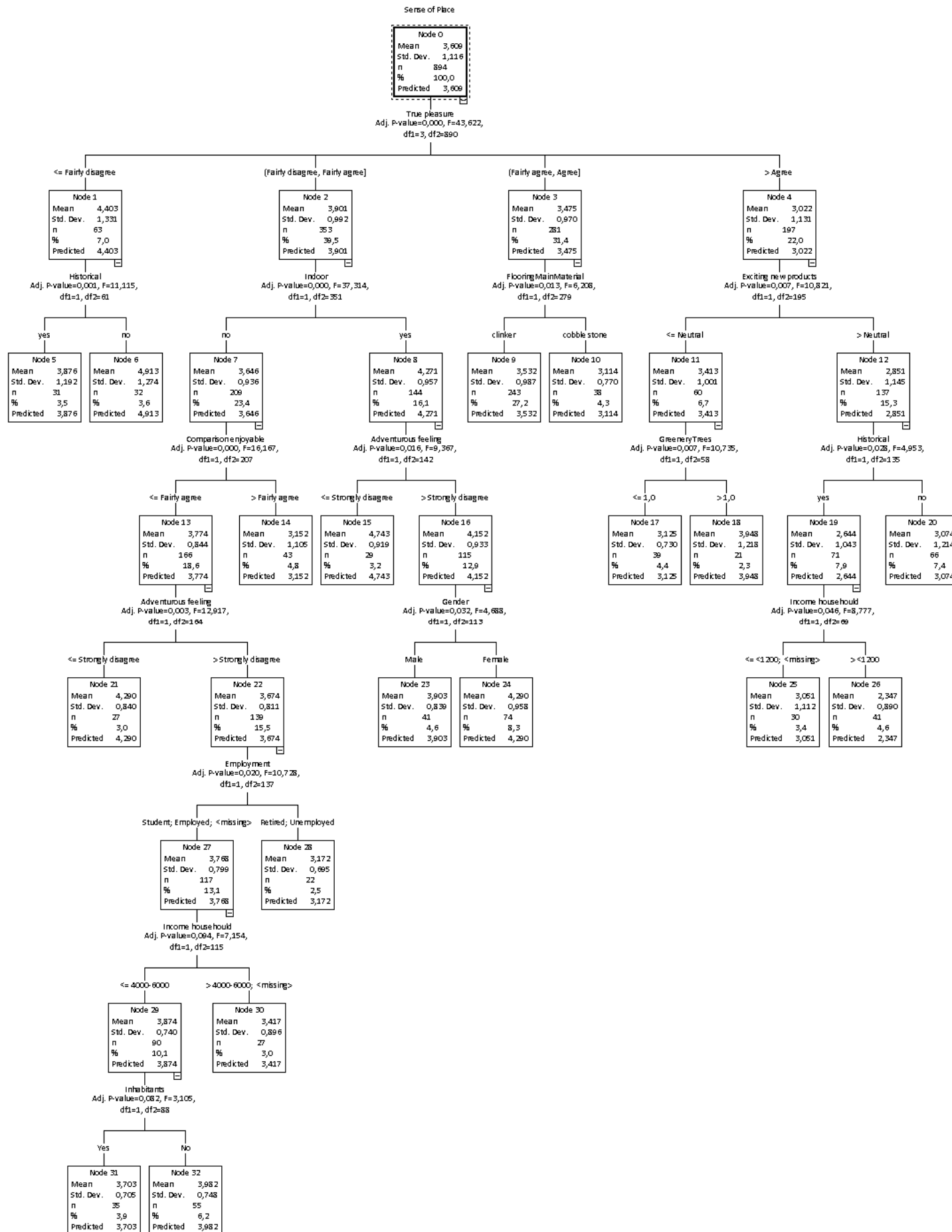
Figure J.4: Sense of place
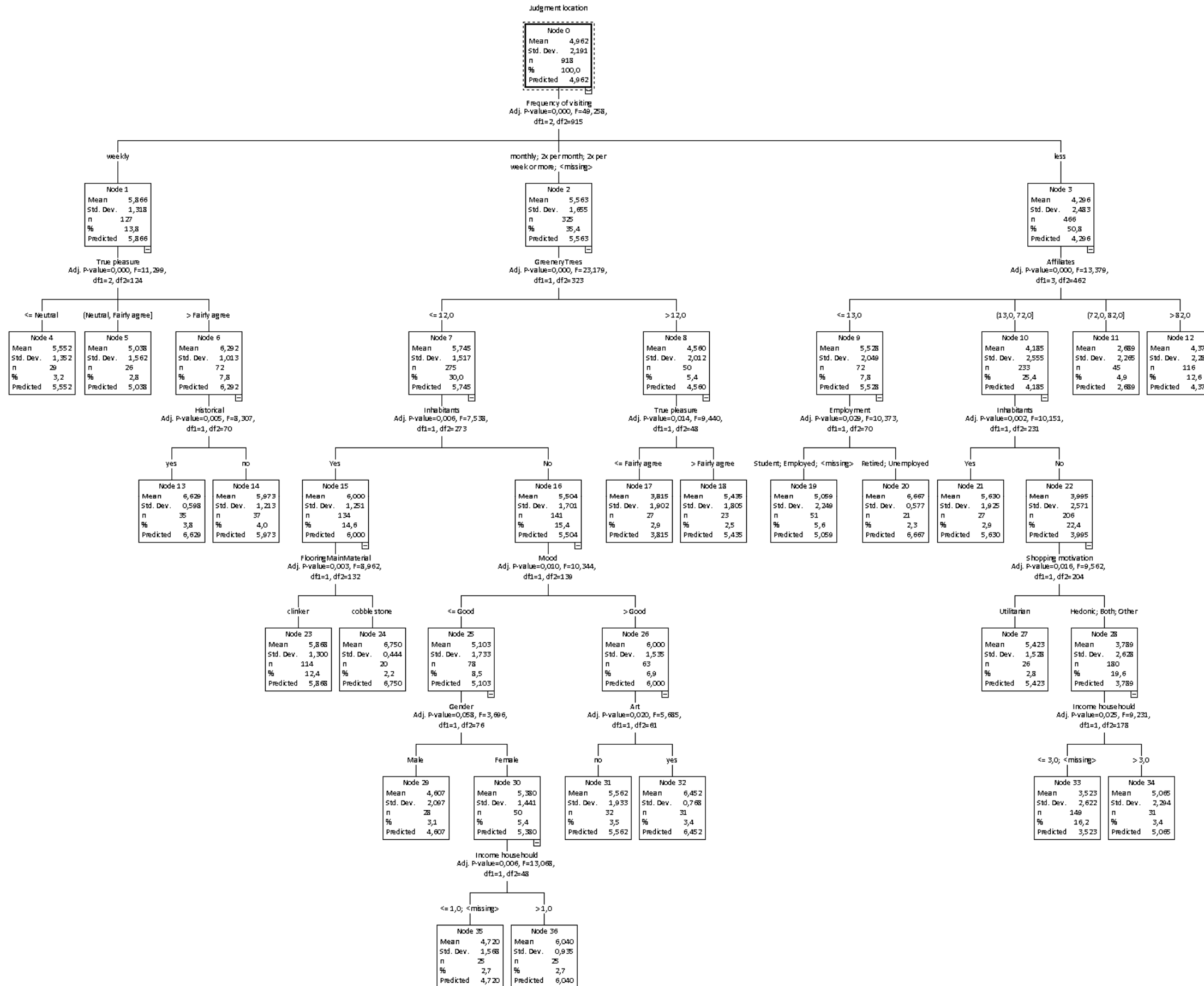
Figure J.5: General judgment

Table J.1: Relevant variables

Variable	Place attachment	Place identity	Place dependence	Sense of place	General judgment
Personal characteristics					
Mood		X			X
True pleasure	X	X	X	X	X
Comparison enjoyable	X			X	
Exciting new products		X	X	X	
Adventurous feeling	X	X	X	X	
Age					
Education					
Employment		X	X	X	X
Income household	X			X	X
Frequency of visiting			X		X
Gender	X			X	X
Shopping motivation		X			X
Inhabitants	X		X	X	X
Physical characteristics					
Amount of shops					
Affiliates					X
Market segment	X	X			
food and drinks	X		X		
Supermarket					
Historical	X		X	X	X
Material façade					
Color façade					
Multiple colors façade					
Material flooring	X			X	X
Color flooring		X	X		
Multiple colors flooring					
Indoor	X	X		X	
Trees				X	X
Water			X		
Benches					
Art		X	X		X
Shopping window width	X				
Shopping window height		X			
Shopping window surface					
Width street					
Height street	X		X		
Width-height ratio street					
Passersby					
Building quality					

Table J.2 : Split variables by CHIAD decision tree

Variable	Group 1	Group 2	Group 3	Group 4
Mood	≤ good	> good		
	≤ good	> good		
True pleasure	≤fairly disagree	Fairly disagree, fairly agree	Fairly agree, agree	> agree
	≤ fairly disagree	Fairly disagree, fairly agree	Fairly agree, agree	> agree
	≤ fairly disagree	Fairly disagree, fairly agree	Fairly agree, agree	> agree
	≤ fairly disagree	Fairly disagree, fairly agree	Fairly agree, agree	> agree
	≤ neutral	Neutral, fairly agree	> fairly agree	
	≤ fairly agree	> fairly agree		
	≤ fairly agree	> fairly agree		
	≤ fairly agree	> fairly agree		

	≤ neutral	> neutral		
Comparison enjoyable	≤ fairly agree	> fairly agree		
	≤ fairly agree	> fairly agree		
Exciting new products	≤ strongly disagree	> strongly disagree		
	≤ agree	> agree		
	≤ neutral	> neutral		
Adventurous feeling	≤ strongly disagree	Strongly disagree, fairly disagree	Fairly disagree, fairly agree	> fairly agree
	≤ strongly disagree	> strongly disagree		
	≤ strongly disagree	> strongly disagree		
	≤ strongly disagree	> strongly disagree		
	≤ neutral	> neutral		
	≤ fairly disagree	> fairly disagree		
Employment	Students; Employed	Retired; Unemployed		
	Students; Employed	Retired; Unemployed		
	Students; Employed	Retired; Unemployed		
	Students; Employed	Retired; Unemployed		
	Student; Retired	Employed		
Income	≤ 1200-2000	> 1200-2000		
	≤ <1200	> <1200		
	≤ <1200	> <1200		
	≤ 2000-4000	> 2000-4000		
Frequency	Weekly; monthly	Less; 2x a month; 2x a week or more		
	Weekly	Monthly; 2x a month; 2x a week	Less	
Gender	Male	Female		
Shopping motivation	Utilitarian; Both; Other	Hedonic		
	Utilitarian	Hedonic; Both; Other		
Inhabitants	Yes	No		
Affiliates	≤ 13	13 – 72	72 – 82	> 82
Market segment	High; exclusive	Middle		
	High	Middle; exclusive		
FOOD AND DRINKS	≤ 1	> 1		
	≤ 2	> 2		
Historical	Yes	No		
Material flooring	Clinkers	Cobble stone		
Color flooring	Grey	Red		
Indoor	Yes	No		
Trees	≤ 12	> 12		
	≤ 1	> 1		
Water	Yes	No		
Art	Yes	No		
Shopping window width	≤ 3	> 3		
Shopping window height	≤ 2.5	2.5 – 3	> 3	
Height street	≤ 6	6 – 9	> 9	
	≤ 6	> 6		

Appendix K: Variables

Table K.1: Questions belonging to the variable labels

Variable	Survey question
Mood	When I went shopping, my mood was:
True pleasure	Shopping is a true pleasure
Comparison enjoyable	Compared to other thing I could have done, shopping is truly enjoyable
Exciting new products	I enjoy searching for exciting new products
Adventurous feeling	Shopping gives me an adventurous feeling
Age	What is your age?
Education	What is your highest education?
Employment	What is your profession?
Income household	What is your net household income?
Frequency of visiting	How often do you shop here?
Gender	What is your gender?
Shopping motivation	My goal for this visit is:
Inhabitants	What is your zip code?

Table K.2: Explanation of the physical characteristics

Variable	Explanation
Affiliates	The percentage of affiliates in the shopping location
Market segment	The market segment of most of the shops in the shopping location
Food and drinks	The amount of food and drink options in the shopping location
Historical	Are the buildings in the shopping location are historical or not historical
Material flooring	The main material of the flooring in the shopping location
Color flooring	The main color of the flooring in the shopping location
Indoor	Is the shopping location indoor (roofed) or outdoor (not roofed)
Trees	The amount of trees in the shopping location
Water	The presence of water (every form of water) in the shopping location
Artwork	The presence of artwork in the shopping location
Shopping window width	The average width of the shopping windows in the shopping location
Shopping window height	The average height of the shopping windows in the shopping location
Height of the street	The average height of the buildings in the shopping location

Appendix L: Regression models

Appendix L.1: Place attachment

Table L.1.1: Regression model 1 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.230	.038	85.793	.000
True pleasure	-.369	.063	-5.891	.000
Adventurous feeling	-.224	.044	-5.092	.000
Comparison enjoyable	-.125	.041	-3.024	.003
Dummy employed	.089	.036	2.498	.013
Inhabitants	-.090	.038	-2.385	.017

R^2 = .152

Table L.1.2: Regression model 2 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.304	.040	82.955	.000
Shopping motivation	-.162	.047	-3.464	.001

R^2 = .013

Table L.1.3: Regression model 3 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	2.964	.058	51.506	.000
Height of the street	-.416	.094	-4.416	.000
Stokstraat	.230	.062	3.691	.000
Market segment	-.106	.048	-2.186	.029

R^2 = .087

Table L.1.4: Regression model 4 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.161	.038	83.410	.000
True pleasure	-.342	.060	-5.662	.000
Market segment	-.341	.040	-8.620	.000
Adventurous feeling	-.211	.042	-4.980	.000
Trees	.190	.049	3.863	.000
Comparison enjoyable	-.121	.040	-3.017	.003
Frequency of visiting	-.125	.043	-2.879	.004
Dummy employed	.078	.034	2.270	.023

R^2 = .215

Table L.1.5: Regression model 5 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.020	.060	5.476	.000
Height of the street	-.402	.094	-4.278	.000
Stokstraat	.243	.062	3.913	.000
Age	.114	.058	1.969	.049
Shopping motivation	-.106	.046	-2.311	.021
Market segment	-.104	.048	-2.139	.033

R^2 = .098

TableL.1.6: Regression model 6 for place attachment

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.038	.059	51.587	.000
Height of the street	-.444	.100	-4.435	.000
Market segment x age	-.386	.071	-5.465	.000
Affiliates x age	-.291	.113	-2.580	.010
Market segment	-.182	.051	-3.581	.000
Stokstraat	.181	.062	2.903	.004
Shopping motivation	-.112	.045	-2.497	.013
City x gender	-.076	.038	-2.002	.046

R^2 = .128

Appendix L.2: Place identity

Table L.2.1: Regression model 1 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.604	.043	83.482	.000
True pleasure	-.330	.067	-4.943	.000
Adventurous feeling	-.249	.047	-5.356	.000
Gender	.152	.042	3.582	.000
Comparison enjoyable	-.114	.044	-2.569	.010
Dummy employed	.091	.038	2.411	.016
Frequency of visiting	-.096	.047	-2.018	.044

R^2 = .131

Table L.2.2: Regression model 2 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.731	.042	89.730	.000
Shopping motivation	-.144	.049	-2.948	.003

R^2 = .010

Table L.2.3: Regression model 3 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.503	.046	76.495	.000
Height of the street	-.631	.090	-7.035	.000

R^2 = .064

Table L.2.4: Regression model 4 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.610	.042	85.816	.000
True pleasure	-.293	.065	-4.496	.000
Historical	-.229	.037	-6.245	.000
Adventurous feeling	-.227	.045	-4.997	.000
City	-.127	.037	-3.467	.001
Frequency of visiting	-.108	.046	-2.335	.020
Comparison enjoyable	-.130	.043	-2.991	.003
Gender	.125	.042	3.016	.003
Dummy employed	.079	.037	2.158	.031

R^2 = .179

Table L.2.5: Regression model 5 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.537	.048	73.547	.000
Height of the street	-.606	.090	-6.722	.000
Affiliates	.260	.063	4.151	.000
Shopping motivation	-.106	.048	-2.220	.027

R^2 = .069

Table L.2.6: Regression model 6 for place identity

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.526	.047	74.873	.000
Height of the street	-.639	.126	-5.078	.000
Market segment x age	-.366	.069	-5.307	.000
City x age	.175	.085	2.068	.039
Affiliates	.173	.093	1.869	.062
Market segment	-.159	.069	-2.308	.021
Food and drinks x shopping motivations	.134	.045	2.949	.003

R^2 = .104

Appendix L.3: Place dependence

Table L.3.1: Regression model 1 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.780	.053	71.902	.000
True pleasure	-.321	.084	-3.807	.000
Adventurous feeling	-.277	.058	-4.806	.000
Frequency of visiting	-.236	.059	-3.987	.000
Comparison enjoyable	-.205	.055	-3.712	.000
Shopping motivation	-.156	.059	-2.623	.009
Gender	.105	.052	2.032	.043

R^2 = .162

Table L.3.2: Regression model 2 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.910	.047	83.581	.000
Shopping motivation	-.161	.055	-2.926	.004

R^2 = .010

Table L.3.3: Regression model 3 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.874	.109	35.397	.000
Height of the street	-.289	.136	-2.130	.033
De Arena	.229	.088	2.609	.009
Stokstraat	.131	.065	1.994	.046

R^2 = .045

Table L.3.4: Regression model 4 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.765	.052	72.014	.000
True pleasure	-.293	.083	-3.517	.000
Adventurous feeling	-.286	.057	-4.987	.000
Frequency of visiting	-.242	.059	-4.114	.000
Comparison enjoyable	-.194	.054	-3.603	.000
Market segment	-.149	.048	-3.113	.002
Shopping motivation	-.128	.059	-2.152	.032

R^2 = .169

Table L.3.5: Regression model 5 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.912	.110	35.429	.000
Height of the street	-.261	.136	-1.920	.055
De Arena	.228	.087	2.604	.009
Stokstraat	.131	.065	2.002	.046
Shopping motivation	-.125	.054	-2.302	.022

R^2 = .050

Table L.3.6: Regression model 6 for place dependence

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	4.144	.072	57.399	.000
Market segment x age	-.415	.068	-6.147	.000
De Arena	.312	.069	4.550	.000
Market segment	-.215	.050	-4.270	.000
Shopping motivation	-.115	.053	-2.158	.031
City x gender	-.086	.043	-1.978	.048

R^2 = .089

Appendix L.4: Sense of place

Table L.4.1: Regression model 1 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.527	.039	89.486	.000
True pleasure	-.344	.061	-5.648	.000
Adventurous feeling	-.250	.042	-5.890	.000
Comparison enjoyable	-.153	.041	-3.773	.000
Frequency of visiting	-.123	.043	-2.837	.005
Gender	.112	.039	2.893	.004
Dummy employed	.083	.034	2.399	.017

R^2 = .174

Table L.4.2: Regression model 2 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.648	.039	93.830	.000
Shopping motivation	-.156	.046	-3.406	.001

R^2 = .013

Table L.4.3: Regression model 3 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.301	.055	6.053	.000
Height of the street	-.611	.099	-6.162	.000
Stokstraat	.192	.055	3.494	.000
Trees	-.113	.054	-2.100	.036

R^2 = .073

Table L.4.4: Regression model 4 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.476	.039	88.630	.000
True pleasure	-.322	.059	-5.438	.000
Adventurous feeling	-.242	.041	-5.868	.000
Market segment	-.287	.039	-7.452	.000
Comparison enjoyable	-.154	.040	-3.883	.000
Frequency of visiting	-.146	.042	-3.457	.001
Trees	.165	.048	3.453	.001
Gender	.091	.038	2.401	.017
Dummy employed	.077	.033	2.291	.022

R^2 = .223

Table L.4.5: Regression model 5 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.362	.055	6.704	.000
Height of the street	-.478	.086	-5.561	.000
Stokstraat	.217	.054	4.043	.000
Shopping motivation	-.119	.045	-2.672	.008

R^2 = .076

Table L.4.6: Regression model 6 for sense of place

Variables	Estimated coefficient (*b*)	Standard Error	t-value	*p*-value
(Constant)	3.473	.042	83.293	.000
Height of the street	-.541	.101	-5.361	.000
Market segment x age	-.404	.064	-6.325	.000
Market Segment	-.237	.045	-5.304	.000
Food and drinks x shopping motivation	.123	.042	2.930	.003
City x age	.175	.079	2.219	.027

R^2 = .116