The influence of the height of shelves and width of aisles on store image and customer satisfaction

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Abstract

Introduction. Retailers need to build up a positive store image and satisfy their customers in order to survive in today's competitive retail environment. This, together with the growing costs of retail space entails that retailers have to make use of their space in an effective way. Next to that, they have to take in account store environment factors. Layout form is investigated multiple times, however, the space of shelves as a whole is not considered earlier. Therefore, this study investigated the influence of the height of shelves and width of aisles on store image and customer satisfaction.

Method. Data was gathered by means of an experiment in the form of an online survey. The variables variety, prestige, pleasure, spatial control, store image and satisfaction were investigated by means of pictures of a pharmacy store. Participants were randomly assigned to one of the four conditions. By use of SPSS, the data was analysed.

Results. The results showed that high shelves in combination with narrow aisles resulted in the least positive effect on store image and satisfaction. Low shelves in combination with wide aisles and high shelves in combination with wide aisles had the most positive effect on store image and satisfaction. Variety had no significant effect with the height of shelves and width of aisles. Prestige had only a significant effect with the height of shelves; low shelves resulted in a higher prestige. Pleasure was experienced the most in case of low shelves and wide aisles. Lastly, the most spatial control was experienced in case of wide aisles or low shelves.

Discussion. Out of the results it was concluded that low shelves in combination with wide aisles resulted had the most positive effect on store image and customer satisfaction. Next to that, high shelves in combination with narrow aisles resulted in the least positive effect on store image and customer satisfaction.

Table of contents

1. Introduction

Customer satisfaction is a key element that leads to brand loyalty (Majid, Mehmood, Shahzad, 2012), and brand loyalty has an influence on the sales of a company. Therefore, it is likely to assume that customer satisfaction is something to which retailers aspire. One major factor influencing customer satisfaction is store environment (Marques, Cardoso, Palma, 2013). Store environment consists of three sorts of factors: ambient factors, such as lightning, scent and music; design factors such as layout and assortment and social factors such as the presence and effectiveness of salespersons (Baker, Parasuraman, Grewal, Voss 2002). Multiple studies have shown the importance of store environment. So did for example the study of Kaltcheva and Weitz (2006) show that a stimulating in-store atmosphere, including tangible and intangible store environment factors such as lightning, music and temperature, can lead to specific emotional outcomes, resulting in more time and money spending of the consumer in store.

Store layout is a design factor of which retailers make use. A store layout is used in order to guide the consumer through the shopping areas. They are important because they influence in-store traffic patterns, shopping behaviour and efficiency (Kent and Kirby, 2009). A good layout can help the shopper find what he or she wants faster (Mohan, 2013), and it makes the shopping experience more enjoyable (Baker *et al.,* 2002). Next to that, a store layout design can also influence the wants and preferences of consumers by influencing the subset of options provided or influencing the way the assortment is displayed (Simonson, 1999). According to the retail store layout theory, there are three types of layout designs (Vrechopoulos, O'Keefe, Doukidis, Siomkos, 2004). The first one is the grid layout, consisting of long aisles parallel to each other; which facilitates routine and planned shopping behaviour. The second is the freeform layout, which is an asymmetric arrangement of aisles and displays of different sizes, shapes and styles. In this layout, there is more freedom to move within the store and it should increase the time that consumers are willing to spend time in store. Next to that, it makes it easier for shoppers to browse the store. The last layout form is the racetrack layout. This layout consists of semi-separate areas, each built based on a particular shopping theme. The aim of this layout is to lead the customer along specific paths in order to show them as many store sections as possible.

But there is more. According to the study of Broniarcyz, Hoyer and McAlister (1998), one of the most fundamental aspects of a store environment is the way in which space is utilized. However, space is often overlooked by most retail operations (Jual-Jacobsen and Granzau, 2015). The reason for this is because space is one of the biggest investments in retail. It is logical to think that for this reason retail organisations try to use as less as space possible and try to use this in the most efficient way. In order to achieve this, efficient strategies are needed in order to optimize their profit with limited space available.

1.1. Definition of the problem

Out of the literature it can be derived that lots of research has been done about store environment factors such as music, lightning and layout; and also to shelf-space which is considered as a fundamental aspect of store environment. However, no research has been done from another perspective of space and layout, namely the shelves themselves and the space they occupy. The height of shelves and the width of aisles can provide multiple combinations of space use. Whereas the width of aisles is discussed in multiple studies, the combination of aisles and shelves is not investigated earlier in my knowledge. However, this is crucial for the retail industry, since store layout influences not only in-store traffic patterns, shopping atmosphere, shopping behaviour and operational efficiency (Lewison, 1994); but also the degree in which the customer is satisfied (Simonson, 1999). Therefore, it is important that this gap in the literature will be overbridged. This gap can form a problem for managers, because in the existing high competitive retailing environment with the high costs of retail space and a high density of shoppers, effective space utilisation is important for maintaining or increasing profitability (Mehta, Shamra, Swami, 2012).

Considering space use in retail setting entails taking into account consequences for store environment factors. Crowdedness is a store environment factor which has implications for retail managers. Mehta *et al.,* (2012) revealed that perceived crowding due to high shopper density can have effect on the behavioural response of consumers and even satisfaction. They reasoned that the feeling of crowdedness has an influence on the feeling of perceived control, and that this in turn has an influence on the pleasure of the shopping experience. The feeling of control and pleasure during the shopping experience are factors related to store environment and both influence customer satisfaction.

Besides satisfaction, the retail environment is an important factor that influences the perception of a customer of a store (Sevilla and Townsed, 2016). It appears that a consumer uses surrounding cues to evaluate the store when he or she enters. For example, store attributes are used in order to determine store prestige and overall price level. This was demonstrated by Buyukkurt (1986), where he asked people to indicate their perceived price level, given multiple store attributes. The results revealed that shoppers perceive an expensive-looking interior as a cue for a prestigious store.

This research will be aimed at recreational shoppers. Nowadays, online shopping is advantageous compared to traditional shopping, in terms of cost-effectiveness, convenience, accessibility, competitiveness and commodity prices (Zhang, Zhu, Ye, 2016). Therefore, I assume that shopping is more often a hedonic activity nowadays. Next to that, these shoppers are more likely to spend more time in-store and to browse the store, which can lead to an increase in their spending. This makes them an interesting target group.

The aim of this research is to expand the literature and to provide managers with information which they can use to improve the satisfaction of their customers and to increase their sales. This research will obtain empirical data in order to investigate 1) what the effect of different heights of shelves and width of aisles have on the store image of recreational shoppers, and 2) to investigate what effect different heights of shelves and widths of aisles have on the satisfaction of the shopping trip of recreational shoppers. The next section provides the theoretical basis for this thesis, where the store environment and its implications will be discussed. In this section hypotheses will be constructed based on the literature. In the method section (section 3), the experiment is described. Section 4 describes the results. Lastly, section 5 concludes and discusses the thesis where the following research question will be answered:

'To what extent have the height of shelves and the width of aisles an influence on the store image and the experienced satisfaction of recreational shoppers?'

2. Theoretical Background

In retail settings, design elements are used in order to provide consumers of a satisfying shopping experience, and to project a favourable store image (Machleit and Eroglu, 2000). When customers are satisfied, not only they are willing to spend more time in the store, also the chance that he or she will return enlarges. Marques, Cardoso and Palma (2013) supported this, by arguing that store environment can play a very important role in increasing customers' satisfaction. They argued that currently this is especially the case due to the difficulty of differentiating products, price, promotion and location for retailers. As a result of this, retailers try to differentiate themselves through store environment by creating one which produces beneficial effects on buyers with the aim of increasing the profitability of the company. Customer satisfaction can be described as satisfying the needs or wants of a consumer in more better way than competitors (Majid *et al.*, 2012). When the customer is satisfied, the change of customer retention is bigger. The degree in which a customer is satisfied not only depends on product quality, but also on other factors such as store environment. Therefore, in this study customer satisfaction is defined as the customer's overall evaluation of the store experience: the experienced satisfaction of the shopping trip.

2.1. Store environment

Store environment consists of ambient factors, design factors and social factors which are used in order to create a pleasant shopping experience. Kotler (1973) introduced the term atmospherics, by which he described the conscious planning of space in order to create such an effect on buyers that the probability of a purchase increases. The layout of a store is thus one of the store environment factors and is quite important, because for many buyers convenience is of value. A good layout not only encourages customers to explore products and move through the store; it also allows easy movement between departments and help customers finding their products easily (Marques, Cardoso, Palma, 2013). Whereas a good layout can attract customers to move through the store and buy more products than planned originally, which leads to an increase in customer satisfaction; a too complex layout can create customer dissatisfaction (Baker *et al.*, 2002).

Besides for customer satisfaction, design elements are used to project a favourable store image (Machleit and Eroglu, 2000). When a customer enters the store, he or she uses surrounding cues to evaluate the store (Sevilla and Townsend, 2016). Multiple researches demonstrated the influence of store environment on customer satisfaction and store image. For example the study of Baker *et al.,* (2002), where they demonstrated the influence of a layout on customer satisfaction. They created a model in where they it was expected that store environmental dimensions, consisting of social, design and ambient factors, influence consumers' perceptions of store choice criteria and that these perceptions affect store patronage intentions. These store choice criteria consisted of interpersonal service quality

perceptions, merchandise quality perceptions and monetary price perceptions. In order to test their model, they showed 297 students a video tape of a card-and-gift shop which 'walked' them through the shop in order to let them experience a store environment with ambient, design and social factors. After this, they had to fill in a questionnaire. The results demonstrated linkages among store environment cues, store choice criteria and store patronage intentions and was the first who examined a store patronage model. For example, they showed that monetary price perceptions, perceptions of store environment and merchandise quality perceptions all had a significant effect on store patronage intentions.

2.2. Shopping motives

Consumers go shopping with different motives. Sometimes a shopping trip is goal directed with a clear end goal, and other times a shopping trip is a recreational activity by which the fun of shopping is the goal itself and not the purchase of a specific product. This distinction in shopping motives is between a so called task-oriented shopper and a recreational shopper. This was argued in a study by Rompay, dijkstra, Verhoeven, Es (2012), where they indicated some important differences between these two sorts of shoppers. A task-oriented shopper visits a store just only to obtain a specific product and derives little or even no satisfaction from the shopping activity itself besides the outcome of the shopping activity. This shopper has no interest in non-functional aspects of the retail environment. This was supported by the findings of Kaltcheva and Weitz (2006), where they showed that task-oriented shoppers can even consider a high-arousal environment as unpleasant and goal-distracting. The opposite is true for the recreational shopper; a high-arousing store environment may contribute to the fun of the shopping trip. This can be explained by the fact that they want provide themselves with enjoyment during the shopping trip, such as experiencing the pleasure of bargaining and social interaction (Yim, Roo, Sauer, Seo, 2014). Recreational shoppers place a higher importance on store ambience, less on acquiring a product and are more likely to continue shopping after they have already bought something (Eroglu and Machleit, 1990). These activities are often described as 'browsing', which implies 'the in-store examination of a retailer's merchandise for informational and/or recreational purposes without an immediate intent to buy' (Yim, Roo, Sauer, Seo, 2014, p.532).

2.3. Space in retail setting

It is important that retailers pay attention to how they use their space. Crowded retail environments can reduce shopper satisfaction and can lead to an earlier leave of the store, so demonstrated O'Guinn, Tanner and Maeng (2015). In this study it was investigated by means of six studies whether social density influences inferences of social class, and whether such inferences then moderate the perception of the valuation of other products. By means of a literature study, they defined territoriality as the attempt to control areas and the resources located within these areas. The attempt of control was expressed in terms of power, status and social hierarchy. The fact is that territory size, which indicates a lower density of any creatures that could be seen as competitors, is related to perceived social

status. The more power, the higher your social status and this means larger territories. Think about it: the big bosses always have the largest offices. Closely related to territory is distance. Individuals with a high status show greater social distance from others; and low status individuals show smaller social distance from others. The reason for this is because the higher status people want to prevent that the lower status individuals gain access to their valuable resources, and that they do not want to be confused with those of less power.

Based on the literature, they predicted that a lower social density is associated with a higher social status. Secondly, it was predicted that a lower social density will result in higher willingness to pay than with higher social density, mediated through social class. In the first study, they tested whether social density could evoke representations of social class by means of an experiment. In total, 75 students were randomly assigned to a high-density condition (36 figures on a white background) or a low-density condition (2 figures on a white background). The participants were asked to take a look at the picture and try to imagine the characteristics of the people in the room, before estimating their social class and income. The results revealed that people perceived the figures in the low-density condition of a higher social status with a higher income. A weakness of this study was that they could not rule out the possibility that the inferences of a low social class by the people who had the high-density condition, was a result of the number of figures in the picture, as opposed to their density. Therefore, a second study was executed. Here, the size of the room was altered, so that they could hold the number of figures constant between the conditions. In total, 21 figures were presented in a small/big room for the high/low density condition respectively. The same procedure was held as in study 1 and the results were similar. Study 3 examined whether these social class inferences influenced product valuation, and made use of an intermediate condition for better generalization. Here, participants were asked to take a look at the picture and to imagine buying a pair of shoes, and to estimate the price of a pair of shoes from that shop. Also, they were asked to indicate their willingness to pay. It appeared that people estimated the price of the shoes higher at the least crowded store and were willing to pay more in a low-density store. Since participants were asked to imagine the shop; the participants in the higher-density condition could have experienced the shop as stressful and therefore they were less willing to pay. Therefore, in study 4 the participants were asked to bid on a product in a store, without imagining the store. The results were significant with study 3, meaning that people were willing to pay more for a product in a low-density store than in a high-density store. Study 5 tried to explain this effect, by testing how social class inferences influence willingness to pay. They wanted to discover association-disassociation motives between the self and the pictured others. The same procedure was held as in the other studies; the participants were randomly assigned to one of the conditions, were asked to take a look at the picture and indicate their willingness to pay. Now, they also had to report the degree of similarity they felt to the people on the picture and the degree in which they wanted to be similar to them. The results added to the previous results that the people wanted to be more similar to those people they perceived

of high social states (in the low-density condition). A limitation of these studies was that other factors in the shop were not manipulated, which could have influenced the answers. Therefore, study 6 examined the spontaneous nature of the inferences. In another experiment, the willingness to pay for a pair of shoes was measured, in where social density was neither explicitly nor implicitly highlighted to the participants. The results demonstrated this spontaneous nature which established the expectations. This study was the first who demonstrated the linkages between social density, social class and product valuation.

2.4. Store image

The design of a store layout has an important influence on the creation of a store image, and store image is an important factor which affects consumer behaviour (Kent, Kirby, 2009). Store image is an ambiguous concept, because the definition differs across studies. According to Hsu, Huang and Swanson (2010), store image is formed by four types of store attributes: merchandise attributes, service attributes, store ambience and marketing attractiveness. Here it was mentioned that concerning store layout, merchandise attributes and store ambience play a role in forming a store image. Merchandise attributes involve product quality, selection of assortment and pricing. Store ambience is related to the visual display of merchandise and the ease of mobility within the store. Baker and Parasuraman (1994) proposed that store environment, merchandise quality and service quality are antecedents of store image rather than components. Next to that, they proposed that these factors have an indirect influence on store image, rather than a direct influence, through merchandise and service quality inferences. The aim of this study was to investigate the relationship between store environment, merchandise quality, service quality and store image. In an experiment, ambient, design and social factors were manipulated in a card and gift shop. These manipulations resulted in prestige-image and discount-image conditions. An important finding in their study was this relationship between store environment, merchandise quality, service quality and store image. As expected, their results demonstrated that these factors are mediators of store image, rather than components. It was argued that consumers use store environment factors to make inferences. For example, a store with thick carpeting and fashionable colours are often inferred as a store that sells high quality products and offers a high quality service (see table 1). Here, store image is defined as the way the customer (the recreational shopper) perceives the store based on store attributes.

Table 1. Design prestige attributes argued by Baker and Parasuraman (1994)

Design factors	Prestige – Image	Discount – Image
Floor covering	Pile carpeting	Linoleum/cement
Wall covering	Textured/flocked	Paint
Displays	Decorated	Bins
Color	Gold, silver, black	Not available
Cleanliness	Clean	Dirty
Dressing rooms	Private	Semi-private or none
Aisles	Wide	Narrow
Layout	Free-form	Grid

Two factors are of relevance in determining store image: prestige and variety. Store prestige was found to be a strong information cue regarding price estimates and quality perceptions in a study by Lin and Sternquist (1994). Participants were randomly assigned to a high-prestige department store or a moderate-prestige department store. By means of a questionnaire, participants were asked to indicate price and quality perceptions of a sweater. The high-prestige department store was perceived as more expensive and of higher quality. Merging these results with the prestige- and discount-image attributes of Baker and Parasuraman (1994), it is likely to expect that prestige has an influence on store image.

Variety has been found to drive perceived satisfaction and store choice. This was investigated by Hoch, Bradlow and Wansink (1999) where they measured variety perceptions, stated satisfaction and store choice by means of an experiment where they showed students different subsets of assortments. Next to that, they argued that people prefer variety for several reasons. With variety and a large assortment, the chance that the shopper finds what he or she wants is larger. Next to that, when tastes are not well formed or if there is uncertainty about what the consumer exactly wants, variety offers the consumer option value. Lastly, consumers prefer variety because they strive to consume different alternatives. Resulting from the fact that consumers care about variety, retailers do too. However, they have to be careful with large assortments, because this also means higher costs due to space use. Besides for retailers, disadvantages due to a large assortment exist for the consumer as well. When the consumer knows exactly what he or she wants, a large assortment with lots of variety may lead to confusion.

Variety perceptions are influenced by three factors. The first one is the total space devoted to the category. Secondly, the number of distinctive stock keeping units offered influence variety perceptions; and lastly, whether the consumer's favourite brands are included in the assortment influences the perception. This was demonstrated in a study by Broniarcyk, Hoyer and McAlister (1998), where they investigated the perceived assortment size in grocery stores. Two studies were executed, in where it was investigated how people form assortment perceptions. In the first study, 212 students went on six shopping trips in where they had to make selections in specific product categories in where the most popular brands were eliminated. After that, they had to fill in a questionnaire which measured their

assortment perception. In the second study, the least favourite brands were dropped and the assortment perceptions were measured again. The availability of the favourite product and the shelf-space devoted to the product were held constant and the findings showed that these were the factors which made sure that store choice was not affected. The results of this study took away the fear of retailers that offering a smaller assortment resulted in a lower perceived assortment size and therefore a decrease in the likelihood of store choice. They demonstrated that it is possible for retailers to decrease their assortment without influencing perceived assortment size, as long as they held category space constant and as only low-preference items were removed. With a smaller assortment, less space is needed and this influences the costs positively.

Variety and store prestige are related factors. Smith and Burns (1996) demonstrated this by investigating the use of a power aisle. A power aisle is a dominant aisle in a retail store, characterized by mass displays of large quantities of a small number of units. The aim of this aisle is to create the impression that the products are at very low prices. In this study it was investigated how the power aisle can affect price images of consumers of the products in that power aisle. Customers in two different grocery stores were asked to indicate their price perceptions on a ten point scale. The results were in line with their expectations, which implied that a power aisle affects consumers' price perceptions. Large quantities of relatively a low number of items results in low price perceptions, whereas a smaller quantity of more products resulted in higher price perceptions. Besides this, it was found that a power aisle results in a lower perceived store prestige, or better said, a discount store. Knowing this, it would indicate that with a higher variety (and less quantity), the price perceptions are higher than with a lower variety (and more quantity). Consequently, it is likely to expect that the perceived store prestige of a store with a low variety would be low, and thus the consumers would perceive this store as a discount store.

2.4.1. Height of shelves and store image

A good layout gives the impression that more products are provided than what is actually present, which leads to a greater perceived variety (Marques, Cardoso, Palma, 2013). Consumers develop different perceptions about the size of the assortment offered, due to visual display and sorting criterion of the shelves; even if the assortment size remains constant (Pizzi and Scarpi, 2016). For this reason, it is likely to assume that the height of shelves can play a role in this perceived assortment size. As with perceived assortment size, perceived variety can differ among high and low shelves while holding assortment size constant.

Besides for perceived variety, store attributes are also used to determine store prestige and overall price level. We all are probably familiar with a situation when you enter an unfamiliar store and assume that the products are of high value, because of an expensive looking interior. The study of Sevilla and Townsend (2016) revealed that this is a result of the space

allocated to the product set, so called the 'perceived space-to-product ratio'. They demonstrated that when a retailer allocates more space to the presentation of a set products, they benefit from positive effects on factors as product valuation, the likelihood of purchase, overall amount spend and even the perception of the product experience. Although this study concerned shelf space allocated to product, I expect that the same holds concerning shelves as a whole.

Referring back to the study of Baker and Parasuraman (1994), where they identified the characteristics of a prestige-image store environment and a discount-image store environment (see table 1); there it was argued that an open layout results in a prestige-image and a grid layout in a discount-image. Therefore it is likely to assume that high shelves, in combination with a grid layout will result in a lower prestige image (discount); or in other words, that high shelves have a negative effect on store prestige. Furthermore, I expect that high shelves will lead to a greater perceived quantity. Smith and Burns (1999) demonstrated that a high quantity and low variety have a negative effect on store prestige. Therefore, I expect that low shelves will result in a higher perceived variety and store prestige. Consequently, I expect that low shelves will have a more positive effect on store image.

2.4.2. Wide of aisles and store image

Store environment cues have an influence on the perceived merchandise value (Baker *et al.*, 2002). It was demonstrated that the same brand of perfume was evaluated more favourable when the store design was described as having 'high-image' attributes than it was depicted as having 'low-image' attributes (*Baker et al.*, 2002). These high-image attributes were wide aisles and carpeted floors, whereas those low-image attributes contained narrow aisles and tile floors. Out of this it is likely to expect that wide aisles will result in a higher perceived store prestige than narrow aisles, resulting in a positive store image. This expectation can be explained by the adaption-level theory of Helson (1964), which states that store environment cues influence consumers' price expectations. A famous example is the glass of beer, for which consumers are willing to pay more in an upscale store environment then in a run-down store. Again, this point out that high-image attributes result in a better perceived merchandise quality.

Based on the literature I expect that there will be two main effects: firstly, I expect that low shelves will have a more positive effect on store image than high shelves. Secondly, I expect that wide aisles will have a more positive effect on store image than narrow aisles. Also, I expect that there will be an interaction effect, namely that low shelves in combination with wide aisles will have the most positive effect on store image. To summarize, the following hypotheses are constructed:

H1: Low shelves have a more positive effect on store image than high shelves
H2: Wide aisles have a more positive effect on store image than narrow aisles
H3: Low shelves in combination with wide aisles have the most positive effect on store image

2.5. Satisfaction

Besides store image, the design of a store influences customer satisfaction. Underlying factors influencing customer satisfaction are perceived retail crowding (Mehta, 2013) and pleasure (Walsh, Shiu, Hassan, Michaelidou, Beatty, 2011). The reason to include these factors in this study is because these factors are linked to space in retail setting (spatial control) and to the recreational shopper (pleasure). In a study of Mehta (2013), it was tried to create understanding of the construct perceived retail crowding, by means of explaining theories. Here, perceived crowding is described as how the consumer evaluates his or hers retail space. Eroglu, Machleit and Barr (2005) added that perceived crowding occurs when a person's demand for space exceeds the supply. It was argued that it consists of two dimensions: human crowding perceptions, which are perceptions of crowding based on the number of individuals; and spatial crowding, which are crowding perceptions based on the amount of merchandise and fixtures as well as their placement in the store. However, it should be noted that perceived crowding vary among individuals, because of their personal tolerance levels for crowding. This was demonstrated in their studies, where they found that perceived retail crowding affects shopping values, but that the effect was moderated by factors such as personal tolerance and time spent for shopping. Later they added that the impact of perceived retail crowding on shopping value is mediated by the emotions experienced by the shopper. However extended research was needed, their studies showed a negative relation between perceived retail crowding and customer satisfaction.

In the study of Mehta (2013), it was argued that crowding is a construct which is generally associated with a negative evaluation of too many people in the same environment. One of the theories by which he tries to explain crowding, is cognitive overload. This means that crowding is experienced when the level of density, a function of the number of individuals and the amount of space, hinders the activities of an individual. However, in this study it is not feasible to include perceived human crowding. Therefore, only spatial crowding will be measured. Spatial crowding has implications for retailers, because the negative effects express themselves in reduced shopping time and a delay of unnecessary purchases (Grossbart, Hampton, Rammohan, Lapidus, 1990), or in other words: they want to get out as soon as possible.

2.5.1. Height of shelves and satisfaction

The feeling of crowding is related to the feeling of control. More specific, feelings of control mediate the relationship between spatial crowding and shopping pleasure (Rompay, Dijkstra, Verhoeven, Es, 2012). A consumer perceives a store environment as spacious or cluttered based on the degree of free movement and if the consumer can find his or her way (Rompay, *et al.,* 2012). These factors express the feeling of control, and are thus based on

their spatial crowding perceptions. Studies have shown that a spacious layout can heighten pleasure in retail and leisure setting, in contrast to a cluttered layout (Rompay *et al.*, 2012). Out of this it can be deduced that a spacious layout has a positive effect on the feeling of control and on the feeling of pleasure. However, Kaltcheva and Weitz (2006) argued that recreational shoppers have a preference for a high-arousing environment. This was supported by Rompay *et al.*, (2012), who argued that recreational shoppers benefit from a high-arousing environment. In this way there is more to see, they can browse the shop and this makes the shopping trip more fun.

Further, Rompay *et al.,* (2012) argued that recreational shoppers do not care much about unobstructed movement and overview, and that for this reason store layout should not affect pleasure. This would indicate that the height of shelves do not affect pleasure. I do not agree with them at this point. Although they stated that spatial crowding and pleasure are related, which makes it not unlikely to think that in case the shoppers are neutral about their spatial crowding perceptions, pleasure is not affected consequently; in my opinion the pleasure of a recreational shopper is always affected. In the end, deriving pleasure is the reason why they went on a shopping trip. I expect that the height of shelves have influence on their pleasure, because whether they perceive a store as spacious or high-arousing can be influenced by this design factor. For example, when they perceive a store as not arousing at all, this does not contribute to their 'shopping goal' (having fun), and this can negatively affect their pleasure and perhaps also their satisfaction. A filled room is more likely to be perceived as high-arousing, in contrary to a spacious room. Therefore, I expect that high shelves will be perceived as more arousing and more contributing to the satisfaction of their shopping experience than low shelves.

2.5.2. Width of aisles and satisfaction
Pointing to spatial control, there is more known about the contribution of the width of aisles to this feeling, in contrary to the height of shelves. Machleit and Eroglu (1990) showed that perceived crowding, either human as spatial, can influence patronage decisions and also overall satisfaction of the shopping experience. This is more general, because no distinction is made between a task-oriented and a recreational shopper. Referring back to the study of Rompay *et al.,* (2012), where they do distinguish between a task-oriented and recreational shopper and indicate that the recreational shopper attaches less value to unobstructed movement and wayfinding; it was argued that the reason for this is because they do not have a specific route to follow (to reach the desired product). Linking this to aisles, it would concern that they don't mind if they were located in a narrow aisle with a bigger chance of obstacles. More specific, it would not affect their experienced satisfaction. However, the literature says that crowding is experienced by individuals when the number of people and/or objects in a limited space restricts or interferes with the activities of those individuals. In case of a narrow aisle, the density between the shelves is bigger than in case of a wide aisle and this can lead to a feeling of spatial crowding. When crowding is

perceived, this can lead to a decrease in satisfaction. Based on that, I expect that de wide aisles have a more positive effect on the feeling of satisfaction, due to the feeling of perceived spatial control. When spatial crowding is experienced, it is likely that the shopper does not want to spend time in the store and to explore it. It is possible that they experience a reduced feeling of enjoyment and this has an effect on pleasure. Therefore, I expect that the wide aisles have a more positive effect on the feeling of satisfaction.

To sum up, I expect two main effects: one which implies that the high shelves have a more positive effect on the satisfaction of the shopping trip than low shelves, and the other one which implies that the wide aisles have a more positive effect on the satisfaction of the shopping trip than narrow aisles. Besides that, I also expect that there is an interaction effect between these two. This resulted in the following hypotheses:

H4: High shelves have a more positive effect on customer satisfaction than low shelves
H5: Wide aisles have a more positive effect on customer satisfaction than narrow aisles
H6: High shelves in combination with wide aisles have the most positive effect on customer satisfaction

Figure 1. Conceptual model

16
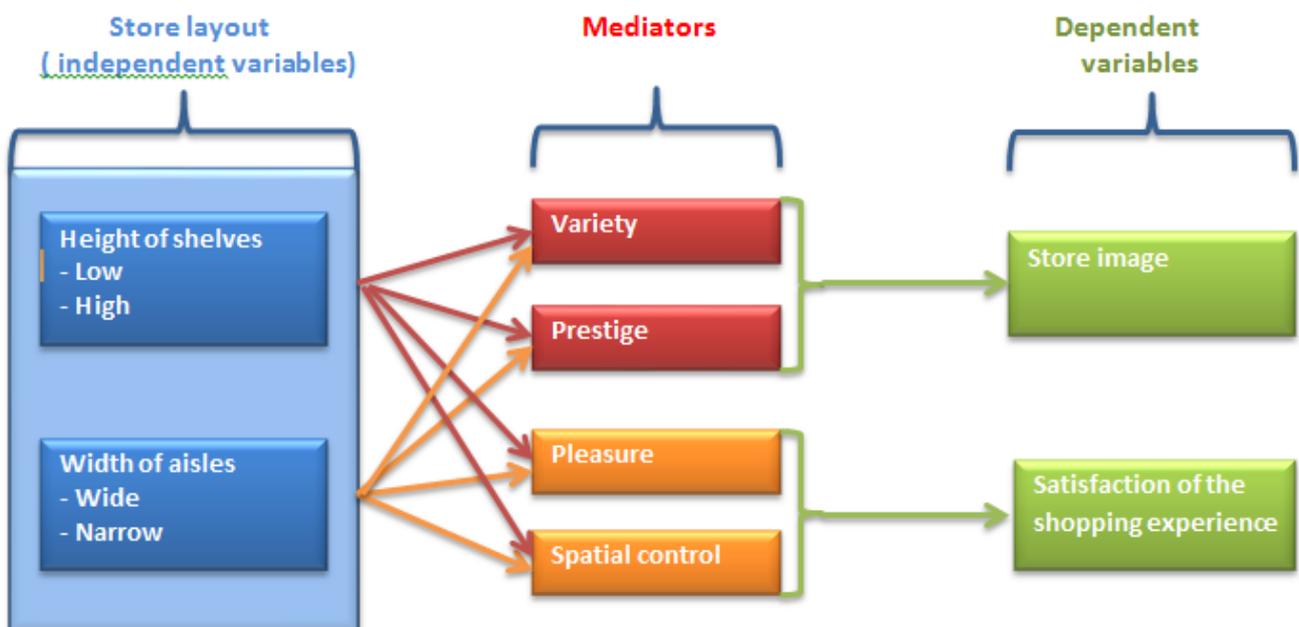
3. Method

By means of an experiment, the two independent variables were manipulated. The first manipulation concerned the height of shelves, which were manipulated in a way that the shelves were high or low. The second manipulation concerned the width of aisles, which were wide or narrow. By means of these manipulations, its effects on the dependent variables 'store image' and 'customer satisfaction' were tested.

3.1 Research design and manipulation

The experiment consisted of a two-by-two design, which indicates that both the independent variables had two levels. The height of shelves had the two levels: low and high; and the width of aisles had the two levels: narrow and wide. This resulted in four layouts:

1. High shelves – narrow aisles
2. High shelves – wide aisles
3. Low shelves – narrow aisles
4. Low shelves – wide aisles

A between-subject design was used, which meant that the participants faced only one of the four layouts. The reason to choose for a between-subject design instead for a within-subject design was because of the risk that the participants figured out what the aim of the study was, and this could have influenced their answers.

The layouts were designed in a virtual programme named Sketch up. In this program, a standard layout of a grid layout was used as starting point, and from there the heights of the shelves and the widths of the aisles were manipulated. It was important that there was a clear difference between the heights and the widths; therefore, the width of the wide aisle (2.40m) was two times the width of the narrow aisle (1.20m). Consequently, also the height of the high shelve (3m) was two times the height of the low shelve (1.5m). In this way, there was a clear difference between the layouts. Pictures of these layout designs were copied and pasted in the survey. The reason to choose for the grid layout-form was because of the belief that this layout-form is most 'neutral' and illustrates the differences between the manipulated variables very clear.

This study focused on recreational shoppers, and therefore it was decided to design the shelves consisting of products of a pharmacy store. These shops contain products such as cosmetics and perfumes, for which people go out on a hedonic shopping trip. These products together with a detailed description of the situation had to make sure that the respondent could imagine the situation, and would use the logic of a recreational shopper to answer the questions.

Figure 2. Layouts

Layout 1. High shelves and narrow aisles

Layout 2. High shelves and wide aisles

Layout 3. Low shelves and narrow aisles

Layout 4. Low shelves and wide aisles

3.2. Participants

In total, 233 participants filled in the online questionnaire. Out of this number, 168 finished the survey. In total, 52 men and 116 women filled in the survey. The age of the respondents was between the 17 and the 89, with a mean of 23.63 and a standard deviation of 10.33. The participants were recruited by means of social media, such as Facebook and WhatsApp. They received a link which they could open to fill in the questionnaire. Also, the survey link was send to people who were member of an e-mail list.

3.3. Procedure

The data was collected by means of an online questionnaire (see Appendix I). The surveys were constructed by use of the program Qualtrics, an online program at which surveys can be designed and spread and which collects the data. The reason to choose for an online survey was because this method enabled reaching a lot of respondents.

The welcome page had the aim to inform the respondent and ask for consent. It was made clear that participating was voluntary, that the answers remained anonym and would be treated confidentially. The respondent was ensured that the answers would only be used for this research. Also, it was made clear that no advantages (e.g. money, gift cards) or disadvantages were attached by participating. My e-mail address was added so that the respondents could contact me if there were any questions or remarks. When the respondents clicked on the next page, Qualtrics assigned the respondents random evenly to one of the four conditions by means of the randomizer function. Pictures of one of the four layouts were shown with a description which should have made clear the situation.

First, questions were asked in order to measure the perceived variety. This was done by means of a statement with two extremes at the ends, of which the respondent could indicate their agreement with one of the two extremes on a seven-point scale. Then, questions concerning the appearance of the store and price perceptions were asked in order to measure store prestige. Whereas variety was measured by a seven-point scale going from 'very little variety' till 'very much variety', store prestige was measured by means of a seven-point scale going from 'cheap' till 'luxurious' for the appearance and 'low value' till 'high value' for the price perception. After a page break, the illustrations of the layout were shown again. The reason to add a page break was to prevent that the respondent saw too much questions at one page, which could have resulted in a lowered motivation. This in turn could have resulted in quitting filling in the survey, or filling in non-reliable answers. Below the illustrations, questions were asked in order to measure pleasure and spatial control. First, pleasure was measured by means of three statements for which the respondent could indicate his or her agreement on a seven-point likert scale. Then, spatial control was measured by means of four seven point scales, with two extremes at the beginning and the end. The respondent was asked to indicate their agreement with the left or the right extreme. Satisfaction was measured by means of three statements of which the respondent

could indicate his or her agreement on a seven-point likert scale. Lastly, store image was measured by means of four statements, for which the respondents had to indicate their agreement again on a seven-point likert scale.

After a page break, some general questions were asked as a conclusion. The respondent was asked to indicate their gender and their age. This demographical information was asked in order to do a randomisation check and to compare with each other. Further, the opportunity was given to leave a remark. Lastly, the respondents could fill in their email address if they would like to participate to more questionnaires. At the end of the page, the respondent was thanked for the participation and it was made clear that the survey had ended.

3.4. Measures

In this section, the instruments used to measure the variables store image, satisfaction, variety, prestige, pleasure and spatial control are presented.

3.4.1. Randomisation and manipulation

In order to check whether the manipulations were successful, the participants were asked to indicate whether they perceived the shelves as high/low and the aisles as wide/narrow on a nominal scale. For the randomisation checks, the participants had to indicate their gender on a nominal scale. Also, they were asked to indicate the degree in which they liked shopping, on a scale of 'once a month', 'twice a month', 'three times a month' or 'weekly'. Further, participants were asked to indicate their age with a slider scale.

3.4.2. Store image

Hsu, Huang and Swanson (2010) measured the interrelationships between grocery store image, travel distance, customer satisfaction and behavioural intentions. They defined four types of store attributes which appeared to develop store image, namely merchandise attributes, service attributes, store ambience and marketing attractiveness. In order to measure store image, statements from this study were used. The statements used in this study were: 'My (grocery) store has an extensive selection of products and brands' and 'My (grocery) store has a neat, well-organized display merchandise on shelves'. Further, Baker and Parasuraman (1994) identified multiple statements in their study in order to measure store image. They used a seven-point likert scale, going from '1' (totally disagree) till '7' (totally agree); the same scale was used in this study. Not all statements were used in this study, because their study concerned also ambient factors which were not considered in this study. The statements used in this study were: 'This store would be a pleasant place to shop' and 'The store is attractive'.

By use of SPSS, the reliability of the scale was measured. This resulted in a Cronbach's alpha of 0.683. Therefore, the statement 'This shop is neat and well-organized' was deleted, resulting in a Cronbach's alpha of 0.746. This indicated that the scale was reliable (alpha >0.7).

3.4.3. Satisfaction

Whether the respondent would be satisfied about his/her hedonic shopping experience based on their illustrated combination of height of shelves and width of aisles, was also measured based on the study of Hsu, Huang, Swanson (2010). In this study, satisfaction was measured by means of multiple statements. The statements used in this study were: 'I would be satisfied with my decision to shop at this store', 'My choice to shop at this store would be a wise one' and 'My experience at the store would have been enjoyable'. The respondents were asked, when looking at the pictures, to indicate their agreement with these statements on a seven-point likert scale that went from '1' (totally disagree) till '7' (totally agree). The reliability analysis revealed a Cronbach's alpha of 0.908, indicating good reliability.

3.4.4. Variety

Measuring variety, the respondent was asked to take a look at the shelves which were illustrated by means of pictures. Hoch, Bradlow and Wansink (1999) investigated the influence of variety perceptions on satisfaction and store choice. In this study, they asked 177 graduates to judge the extent of variety in an assortment displayed on a computer by means of a ten-point likers scale going from '1' (very little variety) till '10' (very much variety). The question which they were asked was: 'How varied is the store's assortment of jinkos?'. In this study, almost the same scale was used, only the question was framed differently. The question which was asked in this study was: 'Looking at the picture globally, do you think that the assortment is varied?'. The reason to frame the question in this way was to prevent that the respondent would pay serious attention to the products on the shelves, instead of indicating their overall perception. Next to that, the scale was not a ten-point likert scale, but a seven-point scale going from '1' (very little variety) till '7' (very much variety').

3.4.5. Prestige

Store prestige was measured based on the study of Smith and Burns (1996). In their study, they measured the effect of a power aisle on consumers' price image. Price perceptions were determined based on a ten point scale with '1' representing the lowest price perceptions and '10' representing the highest price perceptions. However, in this study the seven-point scale was used more often and therefore it was decided to use it as well for this variable. In this study, respondents were asked to take a look at the layouts and indicate their perceived price perception of this store on a scale of '1' (low value) till '7' (high value). Besides this, an unfulfilled statement was added which had to illustrate the appearance of the store according to the respondent. The statement was 'I think the appearance of this store is …'; and the respondents could complete the statement by means of a seven point scale going from '1' (cheap) till '7' (luxurious). The reliability analysis revealed a Cronbach's alpha of 0.762, indicating good reliability.

3.4.6. Pleasure

In order to measure pleasure, three statements from the study of Nysveen, Pederson and Thorb (2005) were used in order to measure the enjoyment of shopping in the store (Bearden, Netemeyer, 2011). These statements were: 'I find walking around in this shop entertaining', 'I find walking around in this shop pleasant' and 'I find walking around in this shop fun'. Respondents could indicate their level of agreement with these statements on a seven-point likert scale from '1' (totally disagree) till '7' (totally agree). The reliability analysis revealed a Cronbach's alpha of 0.906, indicating good reliability.

3.4.7. Spatial control

Spatial control was measured by means of the measurement scale of Bateson and Hui (1987) (Bearden, Netemeyer, 2011). The feeling of spatial control results from of the feeling of spatial crowding. Batseson and Hui (1987) measured crowding in their study by means of a seven-point semantic differential scale. The scale items they used were 'not stuffy – stuffy', 'uncramped - cramped', 'restricted - free to move' and 'confined – spacious'. Not all of these scales were used in this study, because this study did not measure (human) crowdedness. In this study, the respondents were asked to look at the store and to indicate by means of seven point scale whether they agreed with the left or the right scale for the scale items 'not stuffy – stuffy', 'uncramped – cramped', 'restricted – free to move' and 'confined – spacious', in order to measure the feeling of spatial control.

The reason to switch the logic of the last two scales was in order to keep the respondent alert. Consequently, before the analysis could have been conducted, these scales had to be adjusted in SPSS. The scales 'restricted – free to move' and 'confined – spacious' were recoded into the same variables, by switching the values. After this, a reliability analysis was conducted, which revealed a Cronbach's alpha of 0.712, indicating good reliability.

3.5. Analyzing

At the end of the experiment, the results of the survey were compared. This was done by use of the statistical programme SPSS. A two-way ANOVA was conducted in order to test whether there existed main and interaction effects. A regression was conducted in order to test whether found effects could be explained by the process variables. Correlations were executed in order to gain insight to what extent the variables are associated with each other.

4. Results

4.1. Manipulation and randomisation check

The manipulation checks showed that the manipulation of height of shelves and width of aisles was successful. All the participants with manipulated low shelves indicated that they perceived these shelves as low. The same holds for high shelves. Also, all the participants who filled in the survey with manipulated narrow aisles indicated that they perceived these aisles as narrow; the same holds for wide aisles. A randomisation check was runned by use of the Chi-square test. The Chi-square test checked whether the males and the females were distributed equally among the four conditions. The Pearson Chi Square was equal to $\chi(1)=.466$ p=.926, so the null hypotheses which asserted that the ratio within the four groups was not different, was not rejected. From this it was concluded that the distribution of gender among the four conditions was equal and correct. Further, a randomisation check was runned in order to check whether the degree in which people liked shopping was equally distributed among the four conditions. A two-way ANOVA was conducted, with 'degree liking to shop' as dependent variable and 'Height' and 'Width' as fixed factors. The two main effects were not significant (F_{Height} (1,164) = 2.88, p=.09, η^2= .02 and F_{Width} (1,164) = 0.03, p=.86, η^2= .00). Also, the interaction effect was not significant ($F_{Height*Width}$ (1,164) = 1.42, p=.24, η^2=.01). From this it was concluded that the distribution of the degree in which people liked shopping among the four conditions was equal and correct.

Table 2. The process variables and the dependent variables as a function of the height of shelves and width of aisles

	Low shelves (n 90)				High shelves (n 78)				Main effect height shelves	Main effect width aisles	P value interaction effect
	Narrow aisles (n 82)		Wide aisles (n 86)		Narrow aisles (n 82)		Wide aisles (n 86)				
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
Randomisation checks											
Age	22.20	7.47	23.41	9.93	25.02	12.73	23.92	10.77	0.31	0.98	0.48
Liking to shop	4.61	1.60	4.94	1.30	4.49	1.58	4.24	1.77	0.09	0.86	0.24
Dependent variables:											
Store Image	3.75	1.18	3.84	1.09	2.90	0.90	3.76	1.26	0.01	0.01	0.03
Satisfaction	4.31	1.06	4.29	1.13	2.89	1.0	4.02	1.44	0.00	0.00	0.00
Process variables:											
Variety	3.46	1.63	3.71	1.51	3.22	1.35	3.68	1.68	0.56	0.14	0.67
Prestige	3.93	1.12	3.96	1.36	3.04	0.96	3.54	0.91	0.00	0.12	0.18
Pleasure	3.98	1.39	3.99	1.31	2.74	1.16	3.56	1.46	0.00	0.04	0.05
Spatial control	3.34	0.81	2.21	0.89	3.84	0.70	2.73	0.82	0.00	0.00	0.93

4.2. Store Image

According to the predictions, low shelves would have a more positive effect on store image than high shelves, and wide aisles would have a more positive effect on store image than narrow aisles. The findings supported these hypotheses. A two-way ANOVA with 'StoreImage' as dependent variable and the 'Height' and 'Width' as fixed factors showed two main effects (F_{Height} (1,164) = 7.26, p_{Height} <.01, η^2=.04 and F_{Width} (1,164) = 7.54, p_{Width} <.01, η^2=.04). The first main effect showed that low shelves had a more positive effect on store image (M= 3.80, SD= 1.12) compared to the high shelves (M= 3.31, SD= 1.16). The second main effect showed that wide aisles had a more positive effect on Store Image (M= 3.80, SD= 1.16) than narrow aisles (M=3.33, SD= 1.12). Also, an interaction effect was found between Store Image and the height of shelves and the width of aisles ($F_{Height*Width}$ (1,164) = 4.97, $p_{Height*Width}$=.03, η^2=.03). This interaction effect showed that 'high shelves – narrow aisles' had the least positive effect on Store Image (M=2.90, SD=0.90). The results were in line with the third hypotheses, which predicted that low shelves in combination with wide aisles would have the most positive effect on Store Image (M=3.84, SD=1.09), compared to 'low shelves – narrow aisle' (M= 3.75, SD=1.18), 'high shelves – narrow aisle' (M=2.90, SD=0.90) and 'high shelves – wide aisle' (M=3.76, SD=1.26) (see figure 2).

Figure 2.
Interaction effect Store Image

4.3. Satisfaction

Next, according to the predictions, high shelves would have a more positive effect on Satisfaction than low shelves; and wide aisles would have a more positive effect on Satisfaction than narrow aisles. A two-way ANOVA with 'Satisfaction' as dependent variable and the 'Height' and 'Width' as fixed factors was conducted. The results showed two main effects (F_{Height} (1,164) = 22.25, p_{Height}<.01, η^2=.12 and F_{Width} (1,164) = 9.33, p<.01, η^2=.05). The first main effect showed that low shelves had a more positive effect on Satisfaction (M= 4.30, SD=1.12) than high shelves (M=3.43, SD=1.35). The second main effect showed that wide aisles had a more positive effect on Satisfaction (M=4.17, SD=1.27) than narrow aisles

(M=3.61, SD=1.25). This implied that only the second main effect was line with the predictions. Also, an interaction effect was found ($F_{Height*Width}$ = 10.19, $p_{Height*Width}$<.01, η^2=.06). This interaction effect revealed 'high shelves – narrow aisle' had the least positive effect on Satisfaction (M=2.89, SD=1.0), compared to 'low shelves – narrow aisle' (M=4.32, SD=1.06), 'low shelves – wide aisle' (M=4.29, SD=1.13) and 'high shelves – wide aisle' (M=4.02, SD=1.44). The combinations 'low shelves – wide aisle' and 'low shelves – narrow aisle' had approximately the same effect on Satisfaction, which was in contrast with the prediction.


Figure 3.
Interaction effect Satisfaction

4.4. Process variables

To test whether the independent variables influenced the process variables, two-way ANOVAS were conducted with the process variable as dependent variable and the independent variables (height of shelves and width of aisles) as fixed factors. First, the influence of the height of shelves and width of aisles on Variety was tested. Both main effects were not significant (F_{Height} (1,164) = 0.35, p=.56, η^2= .002, and F_{Width} (1,164) = 2.18, p=.14, η^2=.01). Also the interaction effect was not significant ($F_{Height*Width}$ (1,164) = .18, p=.67, η^2=.001).

Secondly, the influence of the height of shelves and width of aisles on Prestige was tested. One main effect was found (F_{Height} (1,164) = 14.24, p<.001, η^2=.08). This main effect implied that more Prestige was perceived in case of low shelves (M=3.94, SD=1.24) than in case of high shelves (M=3.28, SD=0.96). The other main effect was not significant (F_{Width} (1,164)= 2.39, p=.124, η^2=.01). Furthermore, the interaction effect was not significant ($F_{Height*Width}$ (1,164) = 1.85, p=.18, η^2=.01). This meant that the heights of shelves had an influence on prestige, but the widths of aisles did not. Also, the combination of the height of shelves and the width of aisles had no effect on Prestige.

Next, the influence of the height of shelves and width of aisles on Pleasure was tested. Two main effects were found (F_{Height} (1,164) = 16.38, p<.01, η^2=.09, and F_{Width} (1,164) = 4.12, p=.04, η^2=.02). The findings showed that more pleasure was experienced in case of low shelves (M=3.99, SD=1.34) than in case of high shelves (M=3.13, SD=1.37). Also, more pleasure was experienced in the store with wide aisles (M=3.81, SD=1.39) compared to the store with narrow aisles (M=3.36, SD=1.42). A small interaction effect was found ($F_{Height*Width}$ (1,164) = 3.77, p=.05, η^2=.02). The findings showed that 'high shelves – narrow aisles' provided the least pleasure (M=2.72, SD=1.16), compared to 'low shelves - wide aisles' (M=3.99, SD=1.31), 'low shelves – narrow aisles' (M=3.98, SD=1.39) and 'high shelves – wide aisles' (M=3.56, M=1.46).

Figure 4.
Interaction effect Pleasure
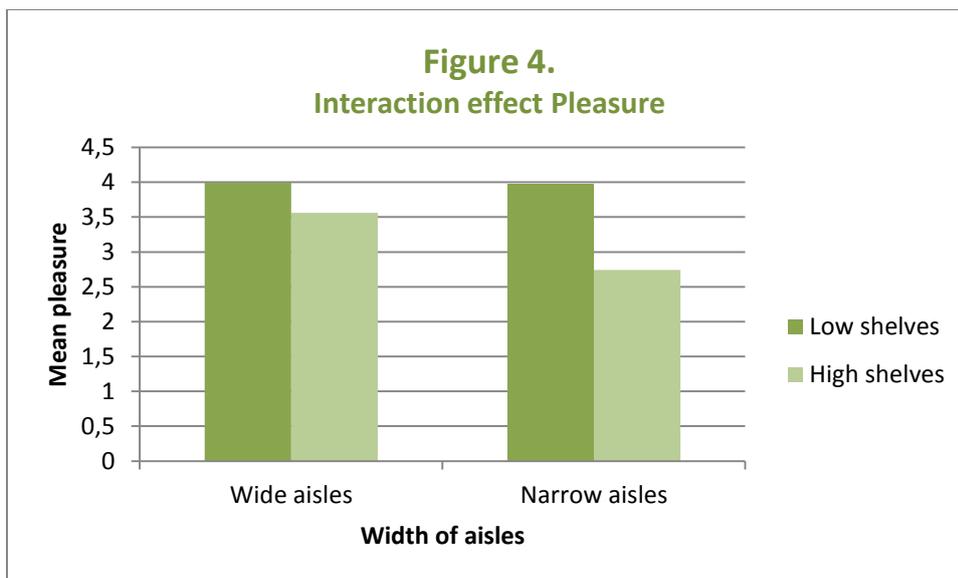
Lastly, the influence of the independent variables on the process variable Spatial Control was tested. Two main effects were found (F_{Height} (1,164) = 16.16, p<.01, η^2=.09, and F_{Width} (1,164) = 79.07, p<.01, η^2=.33). This meant that more Spatial Control was experienced in the shop with low shelves (M=2.73, SD=1.02) than in the shop with high shelves (M=3.31, SD=0.94). Further, more Spatial Control was experienced in the shop with wide aisles (M=2.44, SD=0.89) than in the shop with narrow aisles (M=3.59, SD=0.79). The interaction effect was not significant ($F_{Height*Width}$ (1,164) = 0.01, p=.93, η^2=.00).

4.5. Correlation and regression

In order to understand the influence of the independent variables on the dependent variables, correlations between the process variables and the dependent variable Store Image were run (see table 3 and 4). It appeared that Variety was positively correlated with Store Image (Pearson R= 0.44, p<.01). Also, the process variable Prestige was positively correlated with Store Image (Pearson R= 0.36, p<.01) (see table 5). Both correlations were low. Prestige and Variety were not correlated (Pearson R=-0.03, p=.68). The other two process variables, Pleasure (Pearson R=0.65, P<.01) and Spatial Control (Pearson R=-0.21,

p<.01), had a significant correlation with Store Image. It appeared that Spatial Control had a negative correlation with Store Image. A regression analysis was runned in order to determine whether there existed a causal link between Variety, Prestige and Store Image. The process variables Variety and Prestige both had a positive influence on Store Image ($B_{Variety}$= 0.45 and $B_{Prestige}$= 0.37, p<.05). As table 5 shows, the results showed that Variety and Prestige explained 32.1% of Store Image.

In order to understand the influence of the independent variables on the dependent variable Satisfaction, correlations between the process variables and the dependent variable Satisfaction were runned (see table 3 and 4). It appeared that the correlation between Pleasure and Satisfaction was average (Pearson R= 0.66, p<.01). The correlation between Satisfaction and Spatial control was negative (Pearson R= -0.34, p<.01). This indicated that a high score on Spatial Control (which implied a reduced feeling of control) resulted in a negative effect on Satisfaction. A significant negative correlation between the process variables Pleasure and Spatial Control was found (Pearson R= -0.23, p<.01), which implied that the higher the score on Spatial Control, the more negative the effect on the feeling of Pleasure (see table 4). The other two process variables, Variety (Pearson R= 0.23, p<.01) and Prestige (Pearson R=0.36, p<.01), had a significant correlation with Satisfaction. Next, to determine whether the process variables Pleasure and Spatial Control were predictors of Satisfaction, another regression analysis with Satisfaction as dependent variable and Pleasure and Spatial Control as independent variables was runned. The findings showed that both the process variables Pleasure and Spatial Control were significant predictors of Satisfaction ($B_{Pleasure}$= 0.62 and $B_{SpatialControl}$= -0.20, p<.01). The positive Beta value of Pleasure showed that Pleasure had a positive link with Satisfaction. Concerning Spatial Control, the Beta value showed a significant negative link, which implied that Spatial Control had a negative influence on Satisfaction. Further, results revealed that this model explained 47.2% of the influence on Satisfaction (see table 5).

Table 3. Correlations between the dependent and the process variables

Dependent variables	Store image	Satisfaction
	Pearson correlation	Pearson correlation
Process variables		
Variety	0.44*	0.23*
Prestige	0.36*	0.36*
Pleasure	0.65*	0.66*
Spatial Control	-0.21*	-0.34*

*Pearson correlation has a significance of p<.01

Table 4. Correlations between the process variables

	Variety	Prestige	Pleasure	Spatial Control
	Pearson correlation	Pearson correlation	Pearson correlation	Pearson correlation
Variety	1	-0.03	0.31	-0.001
Prestige	-0.03	1	0.20**	-0.34*
Pleasure	0.31*	0.20**	1	-0.23*
Spatial Control	-0.001	-0.34*	-0.23*	1

*Correlation has a significance of p<.01

**Correlation has a significance of p<.05

Table 5. Regression coefficients of Variety and Prestige on Store Image and Spatial Control and Pleasure on Satisfaction

Independent variables	Store image		Satisfaction	
	Beta*	t-value**	Beta*	t-value**
Process variables				
Variety	0.45	7.01		
Prestige	0.37	5.87		
Pleasure			0.62	10.68
Spatial Control			-0.20	-3.48
Adjusted R$_2$		0.321		0.472

*Reported Beta coefficients are standardized

**Beta coefficients are significant (P <0.05)

5. Discussion

Since retail space is extremely expensive nowadays, retailers have to take in account how they can use their space in the most optimal way. Designing a store involves considering store environment factors. Store environment consists of ambient, social and design factors. These factors are used by consumers by the formation of a store image and they contribute to the experienced satisfaction of the shopping trip. The contribution of layout to store image and satisfaction is investigated multiple times, however, only concerning layout form. In this study, it was questioned to what extent the height of shelves and the width of aisles contributed to the formation of store image of the consumer, and to the experienced satisfaction. In order to answer this question, the height of shelves and width of aisles were manipulated and illustrated in an experiment, which resulted in four different combinations. This study was aimed at the recreational shopper, because these shoppers visit a physical shop with a hedonic motive. Therefore, they are crucial customers for retailers.

5.1. Conclusions

Based on the literature it was expected that low shelves and wide aisles would have a positive effect on store image, mediated by variety and prestige. The findings showed that 'low shelves – wide aisle' resulted in the most positive store image, together with 'low shelves narrow aisle' and 'high shelves – wide aisle'. The biggest effect was 'high shelves – narrow aisle' which resulted in the least positive store image. This effect could not be explained by variety, and only partly by prestige. Low shelves resulted in a higher prestige, which had a positive effect on store image. Further, it was expected that high shelves and wide aisles would have a positive effect on satisfaction, mediated by pleasure and spatial control. The results revealed that 'low shelves – narrow aisles' had the most positive effect on satisfaction; 'low shelves – wide aisles' had approximately the same results. Again, the biggest effect was that 'high shelves – narrow aisle' resulted in the least satisfaction. This effect was explained by pleasure, which was experienced the most with 'low shelves – wide aisles' and 'low shelves – narrow aisles', and least with 'high shelves – narrow aisle'. Also, more spatial control was experienced when the shop made use of low shelves or wide aisles. Low shelves in combination with wide aisles had no effect on the experienced spatial control. Out of these results, it was concluded high shelves in combination with narrow aisles is the least favourable option in order to build up a positive store image and to satisfy the customer. The other three layouts had approximately the same results on store image and satisfaction. Based on the results of the process variables, it was concluded that low shelves in combination with wide aisles is the best option in order to create a positive store image and to enhance the experienced satisfaction.

5.1. Implications

The results of this study have multiple theoretical implications. Firstly, this study enhances the literature by demonstrating that making use of low shelves and wide aisles in a store results in a positive store image and affects customer satisfaction positively. Next, Baker and Parasuraman (1994) investigated store environment, where they formed high-prestige attributes and low-prestige attributes in where wide aisles were considered as high-prestige attributes. The results of this study did not find supporting findings for considering wide aisles as high-prestige attributes. This can be due to the time period between the two studies (1994 and 2017). It could be the case that people are already used to wide aisles, and do not perceive them as prestige attributes (anymore). Next to that, their study was executed by means of showing videotapes of a card and gift store, whereas this study was executed online by means of pictures of a pharmacy shop. This difference in the execution of the study could have caused the difference in findings. Since my findings demonstrated that low shelves are perceived as high-prestige attributes by recreational shoppers, this study is an addition to the study of Baker and Parasuraman (1994). Further, Smith and Burns (1996) demonstrated the power aisle, where they related variety and prestige. With a higher variety, the price perceptions would be higher than with a low variety. For that reason, it was predicted that low shelves resulted in more variety and a higher prestige. However, in this study variety and prestige were not related. This could be due to the difference in data gathering. Whereas Smith and Burns measured prestige by customer contact, in where they asked participants to indicate their price perceptions; this study gathered data by means of an online survey. Next to that, the results of Smith and Burns could be context-specific. Due to the fact that this research was not aimed at investigating the power aisle, the context in where the participants were asked about variety perceptions and prestige differed. Lastly, variety did not have any relation with satisfaction. This is in contrast with the study of Hoch, Bradlow and Wansink (1999), where it was demonstrated that variety drives satisfaction. This contradiction can be due to a misunderstanding of the variety question by the participants in the study. Due to the short time period of this study, participants were repeatedly exposed to the same subset of products. Although the participants were asked to indicate the variety with a global look at the assortment, it could have been the case that they noticed and indicated low variety.

Concerning prestige, Sevilla and Townsend (2016) found that perceiving products of high value when you enter a store is the result of the perceived space-to-product-ratio. The more shelf space you devote for a product, the higher the perceived value of this product. I expected that the same would be true for shelves as a whole; the more spacious the layout, the higher the prestige. No effect was found between the width of aisles and prestige. However, this study demonstrated that low shelves result in a higher perceived prestige. This indicates that more space in the form of low shelves results in a higher perceived prestige.

The results showed that 'high shelves – narrow aisle' had the least positive effect on satisfaction. The combinations 'low shelves - wide aisles' and 'low shelves – narrow aisles' both had approximately the most positive effect on satisfaction. This was in contradiction with the expectations. Van Rompay et al., (2012) argued that feelings of control mediate the relationship between spatial crowding and shopping pleasure. Whereas they argued that a spacious layout can heighten pleasure in retail setting, they also argued that recreational shoppers benefit from a high-arousing environment. Based on their last argument, I expected that recreational shoppers would be more satisfied when a shop made use of high shelves. However, the results showed that they derived more satisfaction from low shelves. Therefore, it seems that recreational shoppers prefer space. Recreational shoppers derived the most spatial control when a shop makes use of low shelves or wide aisles. Next to that, the most pleasure was experienced when a shop made use of low shelves and wide aisles. The correlation between spatial control and pleasure showed that less pleasure was experienced when a consumer had a reduced feeling of spatial control. This supports the study of Rompay et al., (2012), by demonstrating that feelings of control determine the relationship between spatial crowding and shopping pleasure. However, concerning recreational shoppers they argued that they do not care about unobstructed movement and overview, and that for this reason layout should not affect their pleasure. This is in contradiction with the results of this study, where the layouts did affect pleasure. This contradiction can be due to a misunderstanding of the message which was given to the participants in the beginning of the study. The participants were informed that they had to image that they were shopping for fun. It could have been the case that the message was not clear or imaginative enough and that they have not answered the questions with the logic of a recreational shopper.

The results of this study can be used in further research to space use in relation with satisfaction and store image. Next to that, this study can be used for other areas of research. For example, studies in emotion research, store patronage and studies concerning store environment factors can use these findings to develop further studies about the effect of different heights of shelves and widths of aisles on satisfaction and store image. Further, this study has some practical implications. Due to the fact that the layouts in this study were based on a pharmacy store, shops in this category can use the results of this study for redesigning their shop. Next to that, because this research was aimed at recreational shoppers, shops which are visited mainly by recreational shoppers can use this information. Pleasure was experienced the most when the shop had wide aisles and low shelves. Therefore, retailers that wish to generate this feeling of pleasure can use these results in order to redesign their shop. Further, a store was perceived as high-prestige in case of low shelves; therefore, stores who aim for a prestigious feel can use this finding.

5.2. Limitations and further research

This study could be seen as a starting point in this area, and therefore there are some limitations. Firstly, the manipulations in this study concerned the width of aisles and the heights of shelves. Other factors, such as layout form, colour, shelf material and floor material were not considered. Consequently, this could have influenced the answers of the participants. So did Baker and Parasuraman (1994) argue in their study that a grid layout and bright light are low-prestige attributes. A recommendation for further research is to consider these factors. Further, multiple participants indicated that they did not perceive the assortment as varied, because they saw a couple of products multiple times. As mentioned earlier, this could have influenced the answers. A recommendation for further research is to illustrate different products, in order to make sure that the assortment is varied. Next, quite lot respondents closed the survey after the first page break, with the result that they had to be removed from the data. The reason to add a page break was to prevent that people saw to many questions on one page and would lose their motivation. A recommendation for further research is to investigate the best option by means of a literature study.

Due to the short time period of this study, it was decided to aim at recreational shoppers. Therefore, the results cannot be generalized to the task-oriented shopper. This offers an opportunity for further research. Next to that, the layouts consisted of products of a pharmacy store. This means that the results cannot be generalized to other sectors, without further research. Concerning generalization, it could have been the case that the variables did not explain the effects correctly due to a generalization fault in the literature review. Results of other studies could have been context specific, with the result that results were generalized in another way than the researcher meant (Pham, 2013). Next to that, it was not considered that the acceptance of the hypotheses can be due to other variables, such as chance (Pham, 2013). As a result, the possibility exists that this may have led to false-positive results, which cannot be replicated (Pham, 2013). This implies that no effort was made to replicate the experiment, and that the results were generalized to soon. Therefore, a recommendation is to replicate this study and to analyse past studies more nuanced.

By means of this study, I hope to open a door for further research in this area. With the growing competitive retail environment, it is important to keep your customers satisfied and to build up a positive store image. Besides competitive traditional shops, the power of web shops is growing with each day and this makes them dangerous. They have the advantage that providing customers with a fast service and well-looking web design contributes to building up a positive store image and satisfying their customers. For this reason, it is important to realize that you have to offer something special. Why should they visit your shop, instead of shopping on the internet? My advice is to not only satisfy the needs of your customers, but also to make their shopping trip an experience. You can have it all, but it will be the experiences that will last.

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Appendix I – Survey

WAGENINGEN**UR**
For quality of life

Beste respondent,

Van harte bedankt dat u mee wilt werken aan dit onderzoek. Ik ben een studente van de Wageningen Universiteit en studeer Bedrijfs-en Consumentenwetenschappen. Voor mijn afstudeerproject probeer ik door middel van deze vragenlijst inzicht te krijgen in de meningen van de consument op het gebied van winkel layout.

Het invullen van de vragenlijst zal ongeveer 5 minuten van uw tijd kosten. Er zijn geen goede of foute antwoorden; het is erg belangrijk dat u invult wat voor u van belang is. Verder zullen uw antwoorden geheel anoniem blijven en uitsluitend voor dit onderzoek gebruikt worden.

Er zijn geen risico's of voordelen verbonden aan het invullen van deze vragenlijst. U kunt op ieder moment beslissen om te stoppen met het invullen. Als er vragen zijn, kunt u me bereiken via e-mail (inke.frickus@wur.nl).

Als u op 'ja' klikt geeft u aan dat u bovenstaande informatie heeft gelezen en hiermee akkoord gaat. Nogmaals, van harte bedankt voor uw medewerking!

○ ja ik doe mee

`>>`

WAGENINGEN**UR**
For quality of life

Stel je eens voor, je bent een dag in de stad aan het winkelen voor je plezier. Misschien ga je cadeautjes kopen, wil je jezelf verwennen met iets leuks, of vind je het gewoon leuk om even te snuffelen. Je belandt in deze drogisterij (denk aan Etos, DA, Kruidvat). Je hebt **GEEN doel** voor ogen; dus je bent niet op zoek naar een bepaald product, maar loopt deze winkel puur in om rond te kijken. Op de volgende pagina staan twee afbeeldingen weergeven van deze winkel. Neem deze afbeeldingen in je op en beantwoord de vragen.

`>>`

Als je globaal naar de afbeeldingen kijkt, denk je dan dat het assortiment van de winkel gevarieerd is?

Heel weinig variatie ○ ○ ○ ○ ○ ○ ○ Heel veel variatie

Vul de volgende zin aan:

Ik vind de uitstraling van de winkel...

Goedkoop ○ ○ ○ ○ ○ ○ ○ Luxueus

Vul de volgende zin aan:

Ik schat de waarde van de producten in deze winkel...

Van lage waarde ○ ○ ○ ○ ○ ○ ○ Van hoge waarde

`>>`

In hoeverre bent je het eens met de volgende stellingen?

	Helemaal oneens	Oneens	Beetje oneens	Neutraal	Beetje eens	Eens	Helemaal eens
Ik vind rondlopen in deze winkel vermakelijk	○	○	○	○	○	○	○
Ik vind rondlopen in deze winkel aangenaam	○	○	○	○	○	○	○
Ik vind rondlopen in deze winkel leuk	○	○	○	○	○	○	○

Vink het bolletje aan in de buurt van de begrippen die voor jou het meest van toepassingen zijn betreffende onderstaande stelling.

Door deze ruimte voel ik me...

Niet benauwd	○	○	○	○	○	○	○	Benauwd
Niet krap	○	○	○	○	○	○	○	Krap
Beperkt	○	○	○	○	○	○	○	Ruimtelijk
Begrensd	○	○	○	○	○	○	○	Vrij om te bewegen

In hoeverre ben je het eens met onderstaande stellingen?

	Helemaal oneens	Oneens	Beetje oneens	Neutraal	Beetje eens	Eens	Helemaal eens
Ik zou tevreden zijn met mijn beslissing om in deze winkel te winkelen	○	○	○	○	○	○	○
Winkelen in deze winkel zou een goede keuze zijn	○	○	○	○	○	○	○
Winkelen in deze winkel zou een prettige ervaring zijn	○	○	○	○	○	○	○

Neem nogmaals de afbeeldingen in je op en geef aan in hoeverre je het eens bent met onderstaande stellingen.

	Helemaal oneens	Oneens	Beetje oneens	Neutraal	Beetje eens	Eens	Helemaal eens
Deze winkel zou een fijne plek zijn om te winkelen	○	○	○	○	○	○	○
De winkel is aantrekkelijk	○	○	○	○	○	○	○
Deze winkel heeft een uitgebreide selectie van producten en merken	○	○	○	○	○	○	○
De schappen zijn netjes en georganiseerd	○	○	○	○	○	○	○

Vink het bolletje aan in de buurt van het begrip dat voor jou het meest van toepassing is betreffende onderstaande stellingen:

Ik vind de gangpaden...

Smal | ○ ○ ○ ○ ○ ○ ○ | Breed

Ik vind de schappen...

Laag | ○ ○ ○ ○ ○ ○ ○ | Hoog

Hoe graag winkel je?

Helemaal niet graag | ○ ○ ○ ○ ○ ○ ○ | Heel graag

Hoe vaak winkel je voor je plezier?

○ 1 x per maand of minder

○ 2 x per maand

○ 3 x per maand

○ Wekelijks

>>

Wat is je geslacht?

○ Man

○ Vrouw

Wat is je leeftijd?

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Leeftijd

Als je nog suggesties of opmerkingen hebt voor de onderzoekers, schrijf deze dan hieronder.

Als je aan het einde van dit onderzoek graag een samenvatting van de resultaten wilt ontvangen of een blog over het onderzoek wilt lezen, dan kun je hieronder je e-mailadres invullen. Dit e-mailadres wordt niet gekoppeld aan je antwoorden, je antwoorden blijven geheel anoniem.

Aan Wageningen Universiteit worden vaker studies verricht waarvoor wij op zoek zijn naar deelnemers. Mogen wij je hiervoor af en toe (maximaal 1 keer per maand) benaderen per e-mail?

Zo ja, schrijf hieronder je e-mailadres:

Hartelijk dank voor je deelname aan het onderzoek!

Vergeet niet op het pijltje naar rechts te klikken om de vragenlijst in te sturen.

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