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The Smell of Money

A study of how scents can affect behavior and attitudes



ABSTRACT

The use of scents in marketing has been rather limited in Sweden despite the known strengths of the human olfaction. Research has been done, although most with origin outside of Sweden. Swedish firms using scents *"simply believe in the concept"* and do not know whether the scents have an effect or not.

To test the effects of scents an experiment was set up in four grocery stores. The experiment aimed at exploring the effects of a pleasant and congruent scent on customers' behavior, mood and cognitive levels. The scent was added with scent machines and data in the form of sales data, observations and questionnaires were collected during a four-week period.

The results showed that the use of scents definitely have the capacity to influence customers in a retail settings. Their mood, store evaluations and product evaluations were improved. Sales of the tested product increased by 19.89 percent and the sales of the store department by 2.74 percent. The number of unplanned and variety-seeking purchases also increased when the customers were exposed to the citrus scent that was used. The findings did however not prove any changes in customers' cognitive abilities.

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1. INTRODUCTION

”Nothing is more memorable than a smell. One scent can be unexpected, momentary and fleeting, yet conjure up a childhood summer beside a lake in the mountains.”

- Diane Ackerman

Imagine standing outside in the summertime and smelling the scent of freshly cut grass. That smell, the one of fresh cut grass, is one of the most popular scents and it can instantaneously evoke memories from our childhood. This effect, when a certain smell unleashes a flood of memories without a conscious effort, has become known as the *Proustian effect* after Marcel Proust’s link between scent and memory in *Remembrance of Things Past*.

The human sense of smell is unique in comparison to our other senses and has a direct connection with our memory and emotional center of our brain. Consequently, scents would be a perfect mean for getting information to enter the brain and enable later recall. A recent study shows that eighty percent of males and ninety percent of females had strong memories evoked when exposed to a scent (Hultén et al, 2008). A total of seventy-five percent of all emotions we experience during a day is generated by what we smell (Lindstrom, 2005). The strong link between emotions and memory is further amplified by another study which concludes that a scented product was four times as likely to be remembered two weeks later than an unscented one (Krishna et al, 2010). The beauty of scents is that they cannot be controlled like stimuli to our other senses. When you see or hear something, the brain processes that signal before eventually affecting you.

Subconscious decision making and the power of customer memory are integral parts of how products get considered and chosen in a retail environment. The extensive clutter of advertising messages present in stores causes a challenge for brand owners to make their brand and communication messages noticed. The human brain is limited with regards to how much information it can hold and for how long. As a result, as scents appeal to memories and emotions it constitutes a mean to overcome the current clutter and information overload. Fast moving consumer goods are characterized by many buying decisions being made almost instantaneously at point of purchase. In addition to this, research shows customers tend to choose the product that comes first to mind over the product they would actually prefer, would they have remembered it (Nordfält, 2007). Evoking memories and emotions of past experiences, creating a pleasant shopping atmosphere as well as helping customers think of new needs to fulfill can be considered the corner stones of scent marketing.

Scents can be used in a variety of ways. An ambient, or background, scent can be used in a whole store to change the mood of the customers and slow down their shopping pace. A specific product

scent can be used to make a product stand out, make it more memorable or simply demonstrate the product hidden within the package. Scents could also be used for branding purposes aiding in maintaining coherence in overall marketing communication and evoking customer emotions.

Despite the above described advantages of scents, the use of scent marketing has been quite limited in scope. This could be attributed to the lack of studies demonstrating its return on investment and this is especially true in Sweden, where firms have been hesitant to start using scents in their businesses (Götzl, 2009).

1.1 Background

As described above, based on the human brain, our memory and the fierce competition in attracting customers, many advantages can be ascribed to scent marketing. The industry of scent marketing - which includes everything from ambient scents and scented products to brand scents - is growing and spreading throughout the world. What once started as using newly baked cookies to give a genuine home feeling by real estate agents has since expanded to include companies such as Sony, Bloomingdales, Abercrombie & Fitch and Westin Hotel (ScentAir's Homepage, 2010). Singapore Airlines has for example used scent marketing for branding purposes for over a decade. They have developed their own signature scent that is used in all areas where customer interaction takes places; at the check in areas, at the gates, onboard the airplanes, worn by their staff, in the warm towels offered onboard and it is also sold as a perfume (Andersson, 2007). The industry supplying scent solutions is estimated to be worth between five hundred million and one billion U.S. dollars in 2016, compared to forty to sixty million dollars today (Levy and Weitz, 2009),

The recent economic downturn has pushed the industry forward as firms are seeking new and more cost-effective ways to reach their customers (Scent Marketing Blog, 2010). Hopes are that the use of scents can positively affect customers and their shopping behavior in retail stores. Promises of increased sales, longer staying times, better mood and improved brand attitudes are attracting new uses and customers every day.

In order to study the effects of scents in Sweden, we decided to conduct a retail experiment in four grocery stores in the Stockholm region. Retail stores commonly use in-store marketing to reach short-term sales due to the nature of the shopping with up to eighty percent of the purchasing decisions taking place in the actual store (Dahlén, 2003; Nordfält, 2007). This allows for a great opportunity to affect customers in a realistic shopping environment and see how the presence of a scent can alter their behavior and attitudes.

1.2 Problem area

Customer mood is considered the mediating factor for affecting customer behavior in retail stores. Studies have also showed that customers in a happy mood are more prone to be attentive in the

retail stores. There is a growing interest of scent marketing in Sweden, but there is a lack of academic research and success cases based on Swedish market. A lot of companies have shown interest, but few are willing to be amongst the first to start using it and hence postpone the implementation. The current use is often in smaller scales by individual stores and the effects are not measured. The ones using it "*simply believes in the power of the concept*" and have no real data about the value of the method (Manthos and Diabaté, 2009).

Companies want to create an emotional bond with their customers but are finding this harder and harder to accomplish. The use of scents is one mean of doing this with the sense's strong connection to our feelings and memories. This previously mentioned ad clutter in retail stores together with the fact that the majority of our purchase decisions takes place in the actual store, makes it very important for brands to stand out amongst the competition and catch customers' attention (Nordfält, 2007).

1.3 Purpose

The purpose took its starting point in the challenge of how to effectively communicate with customers in a retail setting characterized by advertising clutter and complexity. The main purpose will be *to explore how olfactory stimuli can affect customers' response in a cluttered retail environment.* In order to make the main purpose more concise it has been broken down into two more specific purposes:

1) *To investigate how the presence of a pleasant and congruent scent works as a marketing method in grocery stores*
2) *To investigate how the presence of a pleasant and congruent scent impacts the customer's cognitive ability to process and remember advertising messages*

Customer response is in this thesis defined as purchase, planned or unplanned purchase, brand switching, improved evaluations and customer mood. The customer mood will be seen as a mediating factor for a certain customer behavior.

1.4 Limitations

There is a wide range of stimuli increasing strategies available for grocery stores aiming at creating a desired customer response. There are also a lot of interesting aspects when it comes to scent marketing and retail research. By choosing to focus on olfactory stimuli we have excluded much stimuli directed towards the other human senses. The limited scope of studies of what impact scents have on customers in Swedish retail stores as well as the positive evaluations resulting from similar studies abroad motivates our decision to limit the stimuli to scents. As scent is the only store stimuli we want to investigate the effects of, we have throughout the experiment maintained the other factors as constant as possible. This means making an effort to maintain the same

surrounding conditions and minimize external impact. There are potential synergies between different store atmospherics such as music and scents (Mattila and Wirtz, 2001), but these will be excluded in our experiment. However, this synergy could serve as an interesting starting point for future studies.

The study is further limited by the choice of product, characteristics of the tested brand, the scent, the type of grocery store for the experiment and the advertising message used. The methodology section will justify and elaborate further into how these choices were made. Resulting from the reasoning regarding the difficulty in finding a generic in-store marketing strategy applicable for all grocery stores and products our choice to make the above limitations of the study is based on the search for interaction effects rather than main effects. The level of generalization will be affected by these delimitations and the results might not be fully applicable to all brands, stores and advertising design. Although, we argue that the results could contribute to a greater understanding of how a congruent scented store impact customer behavior and the ability to remember.

Our analysis is centered around the effects on the chosen product category. Hence, potential implications for related product groups are not studied. However, in order to get a relative measure of changes in sales of our tested product and the related product category, these sales are compared to the sales of the department and entire store.

Lastly, the theoretical frameworks are based on capturing responses in consumer behavior. Consequently, the different responses will be looked upon on a general level. Hence, unplanned purchases for example will be considered as one aggregated concept disregarding the impulse driving it.

1.5 Expected Contributions

Scent marketing in Swedish grocery stores is a relatively unexplored area of research. The research has also, as mentioned above, been limited to countries outside of Sweden, which makes the effects of scent marketing abstract for Swedish firms considering to use it. Scents, and especially our preferences, are very personal and as the theoretical section will discuss dependent on factors such as culture and childhood. Our aim is to contribute to a better understanding of the effects of scent as an in-store marketing tool with regards to potential effects on subconscious decision making, how different aspects of the shopping experience are evaluated and the ability to process and remember advertising. As academic research in the field is limited and the studies made by the industry is of less academic accuracy (Nordfält, 2007), we identified an opportunity to contribute with knowledge regarding the effects of a citrus scent on customer responses in larger Swedish grocery stores. This knowledge will allow for a certain level of generalization given the limitations stated above. Finally, the thesis will hopefully give focus to the scent marketing field in Sweden and encourage the use of this marketing method along with future research.

1.6 Definitions

The following terminology is used throughout the thesis and is thus of importance to have established definitions of:

Scent: A smell caused by chemical compounds and perceived by the sense of olfaction. The terms scent, smell and odor are used with the same meaning in the literature. The word odor also refers to scents in general, but it does have a negative connotation in the United States.

Olfaction: The sense of smell.

Scent marketing: The use of scents to set a mood, promote products or position a brand.

Ambient scent: A scent that is not uniquely associated with one single object in the environment and instead used to influence the overall behavior and mood.

Brand scent: A scent attached to a brand to create an emotional connection with the consumers.

Customer response: Is in this thesis defined as purchase, planned or unplanned purchase, brand switching, evaluations of store and product and customer mood.

1.7 Disposition

The thesis is divided into six main sections. Following this introduction, the methodology chapter will explain the experiment's design, the questionnaires and the data collection. The methodology is followed by the theory, which presents relevant theories for our purpose and from these models the hypotheses will be generated in chapter four. The fifth section presents the results and findings from the experiment. The last chapter concludes the thesis in a discussion that answers the purpose, presents critique towards the study and suggestions for future research in the field.

2. METHODOLOGY

This section will present the methodology of our thesis and describe our experiment in detail. It starts of with the selection of the subject, how we approached the study and the design of our experiment. The section then continues with the pre-study to determine the scent used, the main study and how the data was collected, and finally end in a discussion of the validity and reliability of the study.

2.1 Subject selection and scientific starting point

"*Retail is detail*" is a well-known quote by Starbucks' CEO Howard Schultz (Corporate Design Foundation, 2010) and this holds very true with in-store marketing. There is no generic in-store marketing strategy that works in all settings. Factors such as motivational orientation and product characteristics impact the effect of in-store marketing actions. Hence, it is of interest to investigate the effect of particular stimuli under controlled conditions.

Scent marketing is, at this point, used to a relatively little extent as an in-store marketing tool. There are often scents present, especially in grocery stores, but these scents are naturally there from for example the bakery. In selecting the subject for this thesis, the aim was to combine the theories on retail store atmospherics with the emerging industry of scent marketing. There are existing studies and academic theories on how marketers can catch customers' attention and affect their behavior in the store environment. The theory covers mainly in-store atmospherics such as store layout (Nordfält, 2005), light (Summers and Hebert, 2001), special exposures (Chevalier, 1975), visual signs (Moore et al, 1999) and sounds (Cameron et al, 2003). Nevertheless, the theoretical background of the use and effects of scent marketing in Swedish grocery stores is very limited.

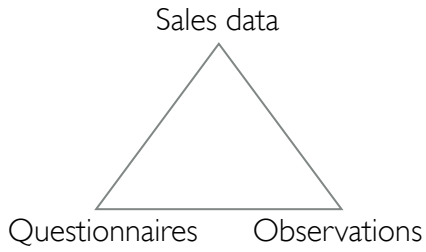
The use of scents has also been mentioned in research, but not to the same extent as stimuli to the other senses. It is harder to get a proper understanding of the efficiency of scents the due to the complexity of the human scent sense. Preferences differ and most research has been limited to countries outside of Sweden, making it harder to use those findings here. Despite these complications, the use of scent shows a lot of potential and allows for possibilities to connect with customers in a way that would not be possible with traditional methods such as print advertising and signs.

We discussed the topic with Jens Nordfält, assistant professor at Stockholm School of Economics, who did confirm the lack of research in this field and gave us a lot of suggestions how we could approach the subject. We also discussed the topic further with Georgios Manthos and Shino Diabaté, owners of M&D and distributors of one of the leading scent delivery systems on the market, along with scent consultant Christina Götzl at Brand Junction, before coming up with the experiment below.

2.2 Study approach

Our strategy for setting up the study approach was guided by our aim for obtaining results illustrating cause and effect relationships. A conclusive causal approach was chosen where specific hypotheses were tested and relationships examined (Malhotra and Birks, 2007). This method required a large and representative sample size. The theoretical application is further based on a deductive approach. A deductive approach means that we make use of existing theories to generate hypotheses, which then is tested. These hypotheses are tested through a natural experiment that takes place in actual retail stores. This approach offers a more realistic representation of how customers behave compared to a controlled experiment.

Figure 1: Triangulation



We used *triangulation* to collect the data during the experiment. Triangulation, illustrated in figure 1, is a combination of different methods to collect data. These different means of data collection complement each other and offer a broader view of information (Merriam, 1994). The data sources used for our analysis were sales data, the collected questionnaires and observations from the stores.

In total, sales data was obtained from the four stores during a four-week period, 837 customer observations were made and 628 questionnaires were collected. A quantitative research approach is thought to facilitate generalizations and thus more suitable for our purpose to investigate the effects of scent on customer responses. The causal research method contributes with knowledge of how the different variables are related to one and other (Malhotra and Birks, 2007).

2.3 Experiment design

The experiment took place in four grocery stores during a four-week period between March 9 and April 5, 2010. During each week, two stores had a scent present and two did not have this manipulation. Our aim was for the design of the experiment to allow us to be able to measure how the presence of the scent affected customers' behavior, attitudes and mood in the stores.

Additionally, we also had different signs with the selected product to test whether the presence of the scent encouraged increased cognition and made the customer more receptive to advertisement with sales arguments for that product. To test this, two stores each week had a visual message and two a cognitive message.

The experiment can be said to be of statistical experimental design, meaning it aims at allowing for statistical control and analysis of external variables (Malhotra and Birks, 2007). The experiment was setup using a *Latin Square design*, which is recommended in retail store experiments (Shadish et al, 2002). Following this design, each combination of scent and advertising message is present in

one store every week and all stores have all four combinations during the four-week experiment period. The setup is shown in figure 2 below:

Figure 2: Latin Square design

	Week 1	Week 2	Week 3	Week 4
ICA Maxi Lindhagen	*Scent present Visual message*	*Scent present Cognitive message*	*No scent present Visual message*	*No scent present Cognitive message*
ICA Maxi Solna	*Scent present Cognitive message*	*Scent present Visual message*	*No scent present Cognitive message*	*No scent present Visual message*
ICA Maxi Nacka	*No scent present Visual message*	*No scent present Cognitive message*	*Scent present Visual message*	*Scent present Cognitive message*
ICA Maxi Haninge	*No scent present Cognitive message*	*No scent present Visual message*	*Scent present Cognitive message*	*Scent present Visual message*

A Latin Square design rotates the manipulation between the stores and this allows for a better comparison between stores and time. The design minimizes the calendar effects and variations between the stores. An example of this was that most people received their wages during week three, which naturally would increase all sales and skew sales that week. But with this design, the results can still be compared between the stores. As consumers show different motivational orientation and moods depending on the day of the week, we decided to conducted all data collection during Saturdays and Sundays to minimize potential effect resulting from this phenomena (Nordfält, 2007).

The following sections discuss the different components of our experiment in more detail. This includes the selection of stores, the product that was used in the experiment, the system that delivered the scents, the advertising and the questionnaires.

2.3.1 Stores

We initially had several different ideas when it came to the selection of stores, but after discussions with Jens Nordfält we decided to focus on grocery stores. The other alternatives were based on stores where a specific scent could be suitable, such as a travel agency and the smell of coconuts to entice the customers to book a summer vacation. Such an approach would definitely be interesting to investigate, but the problems was that these stores only have a limited number of sales due to the nature of their offerings. With a limited number of sales and sales data, it would be hard to determine what caused the sale of for example two more vacations on a given day and thus not allow for any generalizations. Grocery stores do allow for such generalizations in a much better

way. A typical store sells tens of thousands of products a day and with such data we can come to better and more useful conclusions.

The experiment took place in four ICA Maxi stores in the Stockholm region and these stores were located in Lindhagen, Nacka, Haninge and Solna. It is important to keep everything as constant as possible and these stores allowed for this. The stores are similar in terms of size, assortment, geographic location, sales and layout. The store atmospherics offered by these stores were suitable for our needs and would help us come up with generalizable conclusions.

Another benefit of these stores compared to smaller ones is the number of sales. An average ICA Maxi store sells for 360 million SEK annually and carries 30 000 - 45 000 products, while the average ICA Supermarket sales total 66 million SEK and carries up to 10 000 products (ICA Group Annual Report 2009, 2010). A greater number of customers allows for better data collection and more interviews, which improves the quality of our experiment. Finally, it can also be said that the use of scents is aided by big spacious stores that allow the scent to diffuse better. Customers spend more time in these stores and are more likely to answer our questionnaires. The smaller stores are often more crowded, people tend to be stressed and a lot of other stimuli is competing for the customers' attention.

2.3.2 Product and product category

The requirements set up for determining what product to use for the study were that the product should have a certain level of personal involvement for the customers, be of high purchase frequency, be naturally associated with a scent and have similar exposure in each of the stores.

Our tutor, Jens Nordfält, had a research project with Procter & Gamble at the time and was planning to study the launch of their new Head & Shoulders Hair Defense product. The umbrella brand Head & Shoulders will in accordance with later presented theory be considered a strong brand. The fact that our study object was a new product introduced in the Head & Shoulders line added an additional dimension to our study. New products are associated with a greater perceived risk (Blackwell et al, 2006) making it an interesting study object as contemporary scent marketing research shows that a pleasurable scent makes the customer's less sensitive to risk and more variety seeking (Nordfält, 2007).

Products bought in grocery stores are most often low involvement products subjected to limited problem solving and often bought from habit (Blackwell et al, 2006). As we are studying a new product the habitual purchases will be disregarded. The level of product involvement is a function of factors such as perceived risk, product factors, situational factors, personal characteristics and perceived benefits from purchase (Levy and Weitz, 2009: Blackwell et al, 2006). Head & Shoulders' Hair Defense will be considered as a product of low involvement driven by both negative and positive motivations. This is motivated by the product characteristics and the variation of problems

the product is trying to solve. The claims are that the new product reduces hair loss, dandruff and protects against hair breakage. Switching from a currently used product solving the same problem could be perceived as a risk and result in a slightly higher involvement for some buyers than others. Analyzing a new product introduction is further in line with our strategy of searching for interaction effects rather than for generic in-store marketing effects.

Another benefit of the personal care department, which shampoo belongs to, is that it is located early in all four stores. This allows for fewer exposures to other factors that could effect the customers perception of the store, such as receiving pleasant help from an employee or walking through another department of the store that could impact the customer's attitude or mood and hence the result of our study. With this similar store layout and location in the beginning of all stores, these potential problems were avoided. The shelf space and number of product faces are factors that we could not control, as this was negotiated between the individual stores and the brand owners. The impact of this will be further elaborated upon in the reliability and validity sections.

2.3.3 Scent system

We had two scent machines (Appendix 8.2.3 – 8.2.5) provided by M&D in Malmö and they were divided between the four stores according to the Latin Square design in figure 2. The actual in-store placement of these machines varied between the stores due to the stores layout and possibilities to connect them to electrical outlets. They were however placed in direct connection with the Head & Shoulders products, which guaranteed exposure to the scent.

During our meetings with Georgios Manthos and Shino Diabaté at M&D, we got guidance and received multiple suggestions about the placement and scent intensity settings of the machine. The machines should be placed where there was air circulation to aid in the diffusion and spread of the scents. They should also be located as low as possible and preferably on the floor. Scents travel upward and it would significantly limit the spread of the scent if placed higher up.

The position and settings of the machines were of high importance in order to attain the same scent intensity throughout the experiment. The standard settings were that the machines were on between the stores opening hours (8-22) and at fifty percent strength. The scent was dispersed at intervals throughout these opening hours, meaning that the scent was dispersed for one minute before resting two minutes.

A final factor that we did have to consider was to make the machines not to apparent to the customers. We were not trying to trick the customers, but their awareness of the scent might impact their behavior and responses.

2.3.4 Shelf displays and message

Besides rotating the presence of the scent between the stores, we also changed the shelf displays. The aim was to test whether the scent possibly could stimulate cognition, make customers more inclined to remember and increase customers' receptiveness to sales arguments for the product. A few different alternatives were discussed with Jens Nordfält and we ended up using a popup sign that was attached to the product shelves (Image 3 in Appendix 8.2). The alternatives included bigger signs that were more intrusive and signs hanging from the ceiling. The problem with this was that all the stores were similar but not perfectly identical. It would then be harder to control the exposure customers had and with our solution it looked the same throughout the stores during the experiment.

In order to test customers' cognitive thought, we used two different sets of displays. One consisted of a visual message and the other of a cognitive message. Each week there were six signs at the Head & Shoulders shelf. There were always three signs of the product and name (Sign 1 in Appendix 8.1). When there was a visual message, the remaining three signs were of the product (Sign 2 in Appendix 8.1), resulting in a display represented in figure 3 below.



Figure 3: Visual message



Figure 4: Cognitive message

For a cognitive message, the three product images signs were replaced with three different promotional messages for the product. These messages were in Swedish and obtained from Procter & Gamble's promotional material (Figure 4):

- Helps slow down hair loss (Sign 3 in Appendix 8.1)
- Reduces dandruff and protects against hair breakage (Sign 4 in Appendix 8.1)
- New (Sign 5 in Appendix 8.1)

The signs were 9 cm x 9 cm and the representations above are out of scale to illustrate the different messages. We designed the signs ourselves and printed them with the help of ICA and their printing firm. The design was based on the same images, layout, color schemes and logos that Procter & Gamble uses in order to give an authentic look.

2.3.5 The Questionnaires

To investigate the effects of scent on customers, we created a questionnaire that would measure different variables. These different variables are based on theory and needs to be explored in order to answer our hypotheses:

- The customer's mood.
- Changes in customer's behavior. In the questionnaire this includes if it was a planned purchase, if there was any variation seeking, and estimates of spending during their visit in the store.
- Attitude and evaluation of the store.
- Attitude and evaluation toward the Head & Shoulders' Hair Defense product and the brand in general. This included questions related to the cognitive messages on the shelf signs.
- Evaluation of the scent and smell in the department.

The complete questionnaire can be found in Swedish in Appendix 8.5. The setting where the questionnaire would be used impacted the construction of the questionnaire. The aim was to keep it short and concise as customers' patience is limited. Consequently we wanted to keep the interviews at a maximum of three minutes to allow for commitment in answering all of the included questions.

The different sections of the questionnaire will be discussed below, explaining what they aim to address and where they are derived from. All of the questions started of with established questions and scales, and then translated to Swedish and adapted to our experiment if needed.

The order of the questions is of high importance. We started of with a set of questions about the purchase, moved on to the evaluation of the product, store and scent, and then finished of with the customer's mood and control questions. We wanted to keep the questions about the scent to after the evaluation questions in order to avoid making the respondents think about the scent and thus affecting the answers to the other questions.

1. Have you bought shampoo today?

☐ Yes ☐ No

2. Was this purchase planned?

☐ Yes ☐ No

3. Did you buy the same shampoo that you usually do?

☐ Yes ☐ No

4. Are you responsible for your household's purchase of shampoo?

☐ Yes, completely ☐ Yes, partially ☐ No

The first four questions were standardized questions about the visit to the store and the customer's purchase. All four questions were a nominal scale with Yes and No alternatives, except for the last one that also had an option for partially responsible for the households purchasing decisions. The different questions allowed us to categorize the customers and compare the results to see if the scents impacted people differently.

Question 1 determined whether the customer had or was going to purchase shampoo. This question could often be answered without asking by simply observing the customer. If they answered no, we moved on to question 4. *Question 2* measured the degree that the purchase had been planned or could be considered an impulse decision. *Question 3* measured whether the customer could be considered variety seeker or had bought the same product as usual. *Question 4* allowed further segmentation of the respondents by determining if they were responsible for buying the products that we tested for.

5. Head & Shoulders have a shampoo called Hair Defense. On a scale 1-7, with 1 being do not agree and 7 being fully agree, would you rate the following statements?

The product is of high quality	1	2	3	4	5	6	7
The product is good value	1	2	3	4	5	6	7
The product is new	1	2	3	4	5	6	7
The product protects against hair breakage	1	2	3	4	5	6	7
The product reduces dandruff	1	2	3	4	5	6	7
The product helps slow down hair loss	1	2	3	4	5	6	7

Question 5 measured the evaluation and attitude towards the Head & Shoulders' Hair Defense product and is based on Bellizzi, Crowley and Hasty's scales to assess merchandise (Spangenberg et al, 1996). There are six statements and the answers are on a seven-point interval scale dependent on how much they agree with the statement. The first two statements ask about the quality and price level of the product. The remaining are different claims about the Head & Shoulders brand and the Hair Defense product. This is where we test our shelf signs and see if the

different messages on them have an impact on customers' response. For example, if customers were open to more cognitive messages with scents present, they would evaluate the product higher on these statements after reading the shelf displays.

6. Now a few questions about this ICA Maxi store. On a scale 1-7, with 1 being do not agree and 7 being fully agree, would you rate the following statements?

The store is good	1	2	3	4	5	6	7
The store is pleasant	1	2	3	4	5	6	7
The store is clean	1	2	3	4	5	6	7
The store is comfortable	1	2	3	4	5	6	7
The store is motivating	1	2	3	4	5	6	7
The store is interesting	1	2	3	4	5	6	7
The store is stressful	1	2	3	4	5	6	7
There is a lot of advertisement in the store	1	2	3	4	5	6	7

Question 6 measured the evaluation of the store and its atmosphere. The set of questions is originally from Jeffrey Fisher and included thirteen semantic differential items (Fisher, 1974). These items were adapted to our experiment and some parts were excluded in a similar way that had been done in previous scent marketing research by Mattila and Wirtz (2001). Questions about the opening hours for example is not relevant for our experiment.

An additional item was added to measure whether the store was considered pleasant. The reason for this was that it had been found to have a strong correlation with the evaluation of the scent (Spangenberg et al, 1996).

7. In a grocery store, you often encounter different lighting, sounds and scents. When it comes to the smell in this department, how would you rate it on a scale 1-7, where 1 is *[Alternative 1]* and 7 is *[Alternative 2]*?

Negative	1	2	3	4	5	6	7	Positive
Feminine	1	2	3	4	5	6	7	Masculine
Bad	1	2	3	4	5	6	7	Good
Weak	1	2	3	4	5	6	7	Very strong
Unsuitable	1	2	3	4	5	6	7	Suitable
Unfavorable	1	2	3	4	5	6	7	Favorable

Question 7 measured the attitudes toward the scent and is derived from Spangenberg et al (2006). This was the only question in the questionnaire that was not using agreement scales and instead had two alternatives as opposites on the seven-point scale. The reason for this was to keep the questions concise and if we had not use this method we would had been required to ask two questions if the current scent was considered masculine as well as feminine for example.

These questions are crucial in order to determine the effects of the scent. The congruency of the scent with the product and store is central to the usefulness of scents and it is a requirement that

respondents for example evaluate the scent as suitable in order to possibly have a positive effect on the other questions.

8. On a scale 1-7, with 1 being do not agree and 7 being fully agree, would you rate the following statements?

I am satisfied	1	2	3	4	5	6	7
I am happy	1	2	3	4	5	6	7
I feel stimulated	1	2	3	4	5	6	7
I feel excited	1	2	3	4	5	6	7
I am stressed	1	2	3	4	5	6	7

Question 8 measures the current mood of the customer. The question is based on Mehrabian and Russell's Pleasure-Arousal-Dominance Scale (PAD Scale, 1974) and adapted to the use of scents by Chebat and Michon (2003). The two first statements regarding being satisfied and happy relates to the affective dimension of the mood and the remaining three to the activation dimension.

9. Approximately how much will you spend in this store today?

_____ SEK

Age: _____

Gender: ☐ Female ☐ Male

The final three questions are control questions and give us further possibilities to categorize the answers. *Question 10* recorded the respondent's age and could offer insight if scents had a bigger impact on a specific age group. Same thing with *question 11*, which recorded the gender of the respondent. This question was never asked and automatically filled in after the interview was completed.

2.4 Pre-tests

We conducted two sets of pre-tests. The first one was to select the scent used and the second pre-test aimed at ensuring the quality of our questionnaires.

2.4.1 Selection of scent

The initial screening of different scents was conducted in cooperation with Georgios Manthos and Shino Diabaté in Malmö (January 5, 2010). The three most important factors to consider when selecting a scent were the scent's pleasantness, congruity and intensity. The screening resulted in two different scents that were deemed suitable for our experiment. The scents were Mountain Mist and Lemon Fresca. Mountain Mist was floral scent and Lemon Fresca a citrus blend.

In order to make the scent as congruent as possible to the Head & Shoulders' products we conducted two small studies. In the first study (n_1 = 21) participants were asked to smell the Hair Defense shampoo and list the associations they got from the smell. In the second study a different group of people (n_2 = 27) were subjected to the two scents that we wanted to test. One group ($n_{2.1}$ = 13) was exposed to the Mountain Mist scent first and the other group ($n_{2.2}$ = 14) was exposed to Lemon Fresca first. This was done to avoid any preferences due to the order that they were exposed to the scents. The people in the second study were also asked to list their associations to the scent we subjected them to.

Our decision about which scent to choose was based on the similarities between the associations from the first study and the associations to the two different scents in the latter study along with preferences for each of the scents. The sample for the pre-study was a based on a convenience sample, but consideration was given to ensure that the pre-test group was a representative mix of gender and age. The pre-test questionnaire (Appendix 8.3) had questions that covered these criteria. The questionnaire was based on established measures in order to measure the evaluation of the scents properly and ensure the congruency (Spangenberg et al, 2006).

The complete results are presented in Appendix 8.4 and the Lemon Fresca scent was preferred for all of the criteria above. It was rated more positively, attracted both genders more equally, evaluated as less intense and shared the most associations with the shampoo scent. The open-ended question was answered with items such as soap, hand cream, clean, summer and fruit, which all can be found in the store department.

2.4.2 Testing the questionnaires

The questionnaires for the main experiments were tested in Lindhagen, one of the participating stores, the week prior to the experiment. A group of fourteen people participated to test the questions, our translations and to make us use a similar approach in conducting the interviews. There was a lack of established translations for some sections of the questionnaire, which made it a little problematic to find the proper Swedish meaning for some words. The pretest resulted in that we identified three minor changes regarding our translations. The changes were implemented, four more interviews were conducted without the prior problems and the questionnaire was finalized.

2.5 Main experiment

The setup of the experiment has been discussed under *Experiment Design* above and this section will focus on actually executing the experiment. The scent machines and shelf signs were placed in the stores the day prior to the start of the experiment and then the experiment went on for six days. On the seventh day, the manipulation was rotated between the stores according to the Latin Square design. The scent machines were moved and the shelf signs with different messages were changed. The reason for this seventh day without sales data collection was that it took several

hours to move the machines between the stores, set them up and finally for the scent to spread. Due to this, we decided to exclude this day from the data to avoid any potential problems. During the experiment's four weeks, we did collect questionnaires, observations and sales data from the stores.

We had the co-operation with the store managers prior to the experiment, but were throughout the process very careful with having contact with the store personnel. They were informed about the experiment and asked for feedback and potential problems during and after the experiment. They were also given an information pamphlet (Appendix 8.7) and told to contact us if there were any problems with the scent levels.

2.5.1 Questionnaires

The interviews for the questionnaires and observations were done on Saturdays and Sundays. The selections of the stores were rotated, meaning that Lindhagen and Solna were done on the Saturday one week and on the Sunday the next week. The reason that we decided to collect this information during the weekends was that customers tend to do more recreational shopping during these days and be more willing to participate in experiments.

There were approximately forty interviews per store and week. The interviewer was located at the end of the personal care department and approached the customers when they were in the department. This was done after the customers had been exposed to both the Head & Shoulders shelf signs and the scent, given that the store had the scent present.

The method for conducting the questionnaires was the same in all the stores and whether there was a scent present or not. We presented ourselves as students doing a research project at Stockholm School of Economics and diverted answering questions about the study until the end to avoid any effects on their answers. If the respondents upon completion wanted more information, we did answer these questions and also offered an information pamphlet about the experiment (Appendix 8.8).

We asked the respondents the questions in the questionnaire and marked their answers. It is our belief that this increased customers' willingness to participate and improved the quality of their answers. We dictated the pace of the interview, which avoided a quick and automatic answering that sometimes can occur when self-reporting the answers (Malhotra and Birks, 2007).

2.5.2 Observations

Observations of customers' behavior were generated using the same method that was used by Dickinson and Sawyer (1990). Customers were observed on four different stages; if they had *passed* the Head & Shoulders' section, if they had *stopped*, if they had *looked* at the product shelves and finally if the *purchased* a product from it. We used an observation protocol (Appendix 8.6) to check

off whether the customers had done the different stages. For example, if a customer stopped and bought a Head & Shoulders' product, he was checked of as *Purchase* in the observation protocol.

The observations were done at the same days as the questionnaires, but after we were done with the interviews in order to avoid overlapping of customers participating in the questionnaire and those observed. There were approximately fifty observations per store and week.

2.5.3 Sales data

Sales data was collected from the four stores to see whether sales had been affected by the presence of the scent or not. The data included total sales of the store, sales in the personal care department, the hair care category, the shampoo product category, Head & Shoulders products and the Hair Defense product. The data was for the entire four-week period and on a daily basis, which allowed us to exclude the seventh day when we moved the machines and manipulation.

2.5.4 Manipulation control

The questionnaire included a section on the evaluation of the scent and we analyzed this to ensure that our manipulation had the intended effect. Both the purpose in the introduction and the hypotheses that later will be generated starts with the assumption that the used scent in the experiment is considered pleasant and congruent. In order to proceed with these hypotheses, we have to establish that the scent used actually was considered to be both pleasant and congruent.

The pre-tests showed that this was true in a smaller group, where the respondents considered the used scent to be more positive and suitable, as well as not too feminine or strong (Appendix 8.4). The main experiment strengthened these findings and the scent was evaluated to be positive (4.70), good (4.37) and suitable (4.92) on our seven-point scales amongst the 291 respondents. The scent was also considered to normal intensity (3.95) and almost centered in terms of gender congruency (3.80). Another interesting finding is that there was a very limited difference in terms of the perceived strength between the manipulation stores (3.95 when scent was present and 3.30 when no scent was present, $p<0.05$), telling us that the customers barely recognized that there was a scent present.

As a result, we will consider the citrus scent used to be pleasant, congruent and of suitable intensity in the following sections of this thesis.

2.6 Validity and Reliability

In order for our findings to be relevant, we had to ensure the quality of our experiment and maintain a high reliability and validity.

2.6.1 Validity

Validity refers to whether or not our measurements capture what is going on and measures what they are supposed to (Shadish et al, 2002). The aim of our study was to discover valid results about

the effects of our manipulation and to be able to draw generalizable conclusions that can be applied to a larger population (Malhotra and Birks, 2007). In order to reach a high validity that would allow us to do this, we had to consider the following four types of validity:

- Conclusion validity - The conclusion validity focuses on the validity of the conclusions and that the measurements represent what they should measure (Shadish et al, 2002). The use of multiple questions sets and established sources ensure that the questionnaires fulfilled this. The observations were a representation of how customers actually behaved in the store department and the sales data were actual and reliable data from ICA.
- Internal validity - The internal validity measures whether the observed effect reflects a causal relationship or that it could be explained by other factors than our manipulation (Shadish et al, 2002). In our case, was a potential increase in sales one week explained by the presence of the scent? Additionally, the amount of shelf space and product faces differed between the stores giving the product different attention. The use of a Latin Square design, where we rotated the manipulation between the stores throughout the experiment, minimizes this problem according to Shaddish et al (2002). With this design, potential calendar effects and store variations are avoided. We argue that our study design allows for a high internal validity.
- Construct validity - The construct validity measures how our observed results reflect the different items we wanted to measure (Söderlund, 2005). To ensure high validity in this area we did use established scales and sets of multiple questions. The established scales have been proven to work in previous research and hence measure what they are intended to. The sets of multiple questions use several statements in the questionnaire to determine for example the attitude towards the store.
- External validity - The external validity refers to the ability to generalize our results in other settings (Söderlund, 2005). It is previously established that experiments in natural settings, such as our store experiment, without the knowledge of the respondents, limits these problems and why it is considered to be of high external validity (Wilkinsson et al, 1982).

The ecological validity, while not being part of the original four types, would also be considered high. This validity refers to the degree that the study relates to the real-life situation that is studied. Since the experiment was conducted in an authentic environment and customers being unaware of the purpose of the study, we do believe this is high and allows for generalizations of our findings to similar settings. A high level of reliability is required for attaining a high level of validity and the next section will elaborate on this part of the study.

2.6.2 Reliability

Reliability is the consistency of our measurements and refers to how our observed value differ from the real value (Shadish et al, 2002). If the experiment were repeated again under the same conditions, would the same results and effects be observed?

Throughout the experiment, we did attempt to keep all external factors that could impact the outcome as constant as possible. We did the experiments on the same days and times, had the same configuration on the scent machines and used a very similar style for the interviews. The store departments were also located in the beginning of all stores, which avoided interference from other factors in the store.

The sales data collected are as previously mentioned real data and thus very reliable. To eliminate store specific effects, comparisons could also be made by comparing scented stores with unscented stores for the entire test period. The data shows us exactly what happened with sales during the specific time periods.

The use of multiple questions sets in the questionnaire that measured the same thing ensured us that we had a reliable measurement of the customers' attitude and mood for example. Indices were computed when the similar questions showed internal consistency; hence Cronbach's Alpha exceeded 0.7 (Malhotra and Birks, 2007).

2.7 Analytical Tool

The data collected was analyzed with the statistical program PASW 18.0. Focus was given to test the values between the different groups when scent was present or not, as well as to test if there were significant differences between the groups in terms of remembering the visual or cognitive messages on the shelf signs.

For the purpose on analyzing the data collected different statistical tests were run, some of which requires an assumption of normal distribution. A basic rule within statistical analysis is the central limit theorem, which states that the larger the sample size collected the closer to a normal distribution the data gets. A rule of thumb is sample sizes larger than thirty can be assumed to be of normal distribution. In the questionnaire we had 628 respondents, in the observation study there were 837 study objects and the sales data sample size covered daily sales of the four stores during the experiment. Consequently, we have assumed normal distribution of our data. We used independent t-test to test if there were significant differences between the means of the scented stores and the unscented stores. Apart from independent t-tests we mostly used cross tabulations.

A significance level of five percent was accepted at all times and a significance level between five and ten percent was supported with marginal significance. Certain tests showed a higher significance level and implications of this will be discussed during the course of presenting the

results. When questions were compounded into indices, reliability analyses were made. When the number of questions exceeded two, Cronbach's Alpha was used and when it was two or less a bivariate correlation was done and Pearson's correlation coefficient determined their internal consistency.

We had a discussion regarding the extreme values and if these should be removed from the data set in order to get a higher significance level. Due to the risk of type 1 default it was decided to not exclude extreme values. Indices have been made when it could both be theoretically justifiable and when internal consistency prevailed, hence when Cronbach's Alpha exceeded 0.7 (Malhotra and Birks, 2007). However, even though we aimed for 0.7, 0.6 has also been accepted due to that it also shows high internal consistency and can be theoretically supported (Söderlund, 2005).

3. THEORY

In this section, relevant theories for addressing the thesis' purpose and for generating hypotheses will be presented. We will start with store behavior and the decision making process, move on to the Mehrabian and Russell's model on environmental psychology and finish with connecting this theory with the scent marketing field. To aid reader friendliness, as several theoretical frameworks form part of the same hypothesis, the hypothesis generation will be presented in the next section.

3.1 Store behavior and decision making process

In-store marketing comprises a wide range of activities all aimed at impacting the customers' perception of the shopping experience, the offered product range and the prices. The importance of this practice is partly explained by the way customers behave and make decision in retail stores. Previous research has shown that up to eighty percent of all decisions takes place in the actual stores (Nordfält, 2007). The retail environment is very noisy with hundreds of competing stimuli vying for the customers attention (Dréze et al, 1994), resulting in a large clutter that brand owners need to get across in order for their market communication to enter the consumer's mind (Rosengren, 2008).

The traditional Consumer Decision Process model, which states that customers goes through five stages from need recognition to post-purchase evaluation, is not of great relevance in a retail store setting. Critics argue that customers do not have the cognitive ability to go through all steps of the consumer decision model in the environment that exists in grocery stores. This is further supported by that most buying decisions in retail stores are made within seconds without any analysis of the alternatives (Nordfält, 2007). Instead purchase decisions are of habitual character and influenced by the customers' memories and non-conscious influences (Levy and Weitz, 2009).

An alternative consumer decision model has been put forward instead. This model includes the psychological dimension and takes its starting point from the assumptions that multiple decisions are made simultaneously, the customer has been in the same situation several times before and that the customer is not particularly interested in doing extensive evaluations prior to the purchase (Hoyer, 1984).

3.1.1 Decision Making process and cognitive neuroscience

In order to get a deeper understanding of this alternative decision making model and how customer attention is attracted theories from cognitive neuroscience will be used. Cognitive neuroscience combines cognitive psychology with neurobiology. Understanding how the brain works and if it is possible for marketers to create a marketing mix that enhances the brain's information process makes these theories very interesting for marketers (Bargh and Morsella, 2008).

It is in the conscious short-term memory that the informed decisions are made (Hoyer, 1984). Due to the limit of this conscious memory capacity many decisions are based on the unlimited non-consciousness. In the process of grocery shopping it is very likely that consumers are affected by these non-conscious influences. When customers are being exposed to products it is most commonly these non-conscious influences that determine if the customers see the product as a solution to a perceived need and purchase it (Nordfält, 2007). This involuntary non-conscious process is commonly referred to as *automaticity* (Bargh, 1989).

Understanding the interplay between the subconscious and non-conscious is vital. Customers do not always buy the product they like the most and instead buy the product that comes to mind at point of purchase (Nordfält, 2007). The products forming part of the customers consideration set are the only ones that can be bought. Consideration set theory states that decision making is comprised of two steps, firstly subconsciously excluding the majority of alternatives and then evaluating the remaining. Recall is hence based on the retrieval set (Blackwell et al, 2006). This can be translated into theory of limited short-term memory and perception. The brain has a tendency to group memories into subsets consisting of less then five elements (Nordfält, 2007). The shampoo category is as a result estimated to have an average of 6.1 types in the consideration set (Blackwell et al, 2006).

Situation specific scents have an ability to evoke, activate and enrich memories and it can create a feel of a need as well as facilitate the internal search for information in the consumer buying process. As a result the consumer buying process model is not fully applicable in a grocery store setting as many products are purchased within a limited time period, resulting in almost non-conscious decisions that involve minimal evaluation (Nordfält, 2007). What then becomes increasingly important is for retailers to influence and stimulate the unrevealed needs once the customer is in the store.

Scents have been identified as one mean of evoking unrealized needs. Researchers further claim that scents stimulate the brain without creating a cognitive response by activating the thought process that creates responses on a subliminal level. The memory of a scent lasts longer than memories generated by impressions from other senses. Previous research has further brought up the value of stimulating the other senses and synergies attained when multiple sense stimulation is used (Kaltcheva and Weitz, 2006).

3.1.2 Planning

As previously mentioned, studies show that grocery shopping is unplanned in character and purchase decisions are executed within seconds without any previous analysis of alternatives (Nordfält, 2007). The level of unplanned purchases depends on the motivational orientation of the customer. Task-oriented consumers do less impulse buying than customers of recreational

orientation. Impulse buying is a buying decision made by customers on the spot after seeing the product and being exposed to the store atmospherics (Levy and Weitz, 2009).

Research shows that it is of interest to investigate if scent marketing has an effect on impulse buying. Shampoo possesses characteristics of a impulse purchase product (Levy and Weitz, 2009) and theory shows that a presence of congruent scent make the test persons more inclined to try products that are different in their own perception, thus increasing variety seeking (Mitchell et al, 1995).

3.1.3 Motivational orientation

Research describes the underlying motivational orientation for going shopping as either being of a *task-oriented* character or being of *recreational* orientation. There are few customers who think that grocery shopping is intrinsically satisfying. Grocery shopping can thus be assumed to have a task-oriented motivation and it is of great value for retailers to know what motivation the majority of their customers is of (Kalcheva and Weitz, 2006).

It is also emphasized in research that the different motivational orientations can vary between the days of the weeks, reasons for shopping and also change as customers move from one store department to another. Despite grocery shopping being primarily task-oriented, the shopping in these stores during the weekends shows more signs of recreational orientation than during the weekdays. The motivational orientation moderates the relationship between arousal and pleasantness of customers' in-store experiences as they are engaging in shopping and consumption. Consequently, the level of store excitement retailers should create in the stores depends on the dominant shopping motivation of their customers. There should be a high arousal environment for recreational buyers and a low arousal environment for task-oriented buyers. The dominating motivational orientation of a store's customers should be the guiding principle for the store atmospherics strategy (Kalcheva and Weitz, 2006).

3.1.4 Processing of the advertising

As mentioned above customers are exposed to multiple influences. The processing of messages can be evaluated against four criteria: attention to the advertising, learning something from the advertising, acceptance and believing what the advertisement communicates and finally emotions evoked by the advertising (Percy and Elliot, 2005). Attention and learning are crucial for the processing of all messages, acceptance becomes very important in advertising for high involvement purchases and emotions are a facilitator for all message processing. Attention is of course necessary before any other message processing can happen. Attention can either be of conscious or subconscious nature and the level of consciousness is a function of the level of automatic or conscious processing. The strategy for advertising creation depends on the product characteristics and level of involvement.

3.1.5 The new product and level of product involvement

An introduction of a new product can impact the customer's perception of their desired state and increase the gap between the perception of their actual state and the perception of a desired state (Nordfält, 2007). Brand awareness is usually divided into recall and recognition. A new product does not benefit from the advantages of recall and recognition, as is the case with more established and strong brands. Stronger brands have a larger likelihood of being part of customers' consideration sets and hence be remembered at point of purchase (Percy and Elliot, 2005; Kotler et al, 2005).

An established brand has four choices when it comes to developing the brand. A *line extension* extends the brand to new forms or flavors of an existing product category. The *brand extension* extends the brand into new product categories. *Multi-branding* by introducing new brand names in the same product category. Finally, introducing *new brands* in new product categories. Developing a brand is associated with certain risks of brand dilution or as is the case of the Hair Defense line extension that the sales of the extension cannibalizes on the company's other products (Kotler et al, 2005).

Decisions in the market place are affected by the level of involvement and by the type of motivation. The level of product involvement depends on personal factors, situational factors and product factors. The kind of motivation is a result of the aim with the purchase. Negative motivations result from a desire to avoid or remove a problem whereas positive motivations result from buying to feel good (Percy and Elliot, 2005).

Product characteristics greatly impact buying behavior. Kotler identifies four different types shown in figure 5 and these types are based on the degree of involvement and the extent of the differences among the brands. Shampoo could be considered to be low involvement and with some differences between the alternatives.

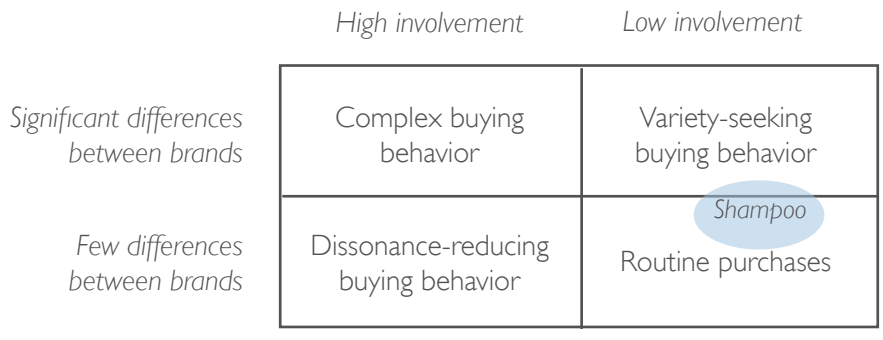


Figure 5: Buying behavior

3.2 Environmental Psychology

Environmental psychology is a disciplinary field that dates back to early 1900's and focuses on the interplay between humans and their surroundings. The studies have primarily centered around work, residential and entertainment environments such hospitals and schools. The Mehrabian and Russell (M-R) model is one of the leading approaches in this field and have since been tested and adapted to the retail environment.

3.2.1 Mehrabian-Russell model

The M-R model explains how the environment, in this case the store atmosphere, results in a certain behavior by the customers. The model is based on the Stimulus-Organism-Response paradigm (S-O-R), which states that a *stimulus* containing clues about the environment combines with an individuals' internal evaluation (*organism*) to create a specific *response*.

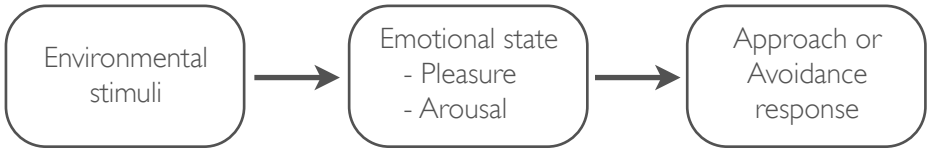


Figure 6: Modified Mehrabian-Russell Model

The original model uses three basic emotional states to explain the impact of the environmental stimuli on the individual. These emotional states are pleasure, arousal and dominance, which frequently is referred to as the PAD scale and used to measure individual's mood. Pleasure refers to how a person feels happy, good or satisfied; arousal how he feels excited, stimulated or alert; and dominance how the person feels in control of the situation.

Mehrabian and Russell further state that all responses to an environment can be considered either as an approach or avoidance. Approach responses refers to situations when the customer positively approaches by for example staying in the store longer, exploring the offerings, buying the product and communicating with others in the surrounding. Avoidance is the opposite and includes leaving the store, avoiding the product, not making a purchase or avoid interaction with others and the environment (Donovan and Rossiter, 1982).

The M-R model was tested in a retail setting by Donovan and Rossiter and their findings was that the emotional state was a good mediator for behavior and often overlooked. Pleasure was a significant predictor of the behavior. Arousal was also this, but only in combination with an already pleasant atmosphere. No support was however found for the dominance emotional state, which resulted in this emotional state being ignored in a lot of the later research and excluded in the modified model in figure 6 (Kaltcheva and Weitz, 2006; Donovan and Rossiter, 1982; Donovan et al, 1994).

3.2.2 Store atmospherics

The environmental stimulus in the retail setting is the store atmosphere. Store atmospherics, which is an integral part of in-store marketing, was first discussed by Philip Kotler (1973). The atmosphere is commonly defined as the physical and non-physical environmental elements that can be controlled or manipulated by retailers to influence the customers (Nordfält, 2007).

The atmospherics is categorized into three parts according to the framework by Baker (1986):

- *Design* factors include the store layout, color schemes in the store and signs
- *Ambient* or background factors that covers music, lighting, other sounds and scents
- *Social* factors such as crowding in the store and presence of employees

These three factors make up the store atmosphere and give the retailers a tool to influence customers' mood, attitudes and finally behavior. With the type of purchases in grocery stores and the limited cognitive effort that takes place, these elements have an even bigger potential impact.

The use of scents fall into the category of ambient factors and while they are easily overlooked in favor of more established and controllable factors such as music and lighting, they still offer a great opportunity to effect the customers and their behavior.

3.3 Human olfaction

The human sense of smell is a very primitive sense and has throughout times been used as a warning signal against fires, poisonous fumes and spoiled food (Öberg, 2004). The sense of smell is one of two chemical senses along with taste and differs from the other senses in its directness. Pam Scholder, a Georgia State marketing professor, explains it with *"all of our senses, you think before you respond, but with scent, your brain responds before you think"* (Lindstrom, 2008).

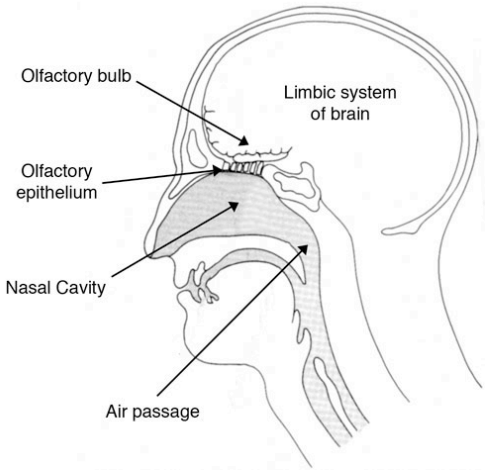


Figure 7: Olfaction

Different smells make their way up to the olfactory epithelium in the top of the nasal cavity. This olfactory epithelium contains millions olfactory nerve cells, which when stimulated sends a signal along the olfactory nerve to the brain. This signal is received by the olfactory bulb, which is a structure of the bottom of our brains and part of the limbic system. The combination of these signals make up the scent that we smell and this combination is the reason for our capabilities to detect over ten thousand different scents (Hultén et al, 2008).

The placement of the olfaction bulb in the limbic system is central for the sense. The limbic system controls and supports a variety of functions such as emotions, mood and long-term memory. The

direct connection to these functions is what allows for scents to influence us as easily and subconsciously as it does. Scent has the best recall of all our senses, up to ninety percent of our taste comes from it and seventy-five percent of all our emotions are generated by what we smell (Hultén et al, 2008; Lindstrom, 2005; Krishna et al, 2010).

3.4 Scent Theory

3.4.1 Scents in the retail setting

With an understanding of how the sense of smell works, it is equally important to understand how the scents are perceived and what other factors that influences the results. Charles Gulas and Peter Bloch (1995) presented their model capturing the multiple factors that can influence the perception of scents in figure 8. The beginning and end is the same as the M-R model, with a stimulus in the ambient scent resulting in an approach or avoidance situation. The first step is that the scent is added to the environment, which is then perceived by an individual, resulting in an affective response to the scent and finally an approach or avoidance reaction.

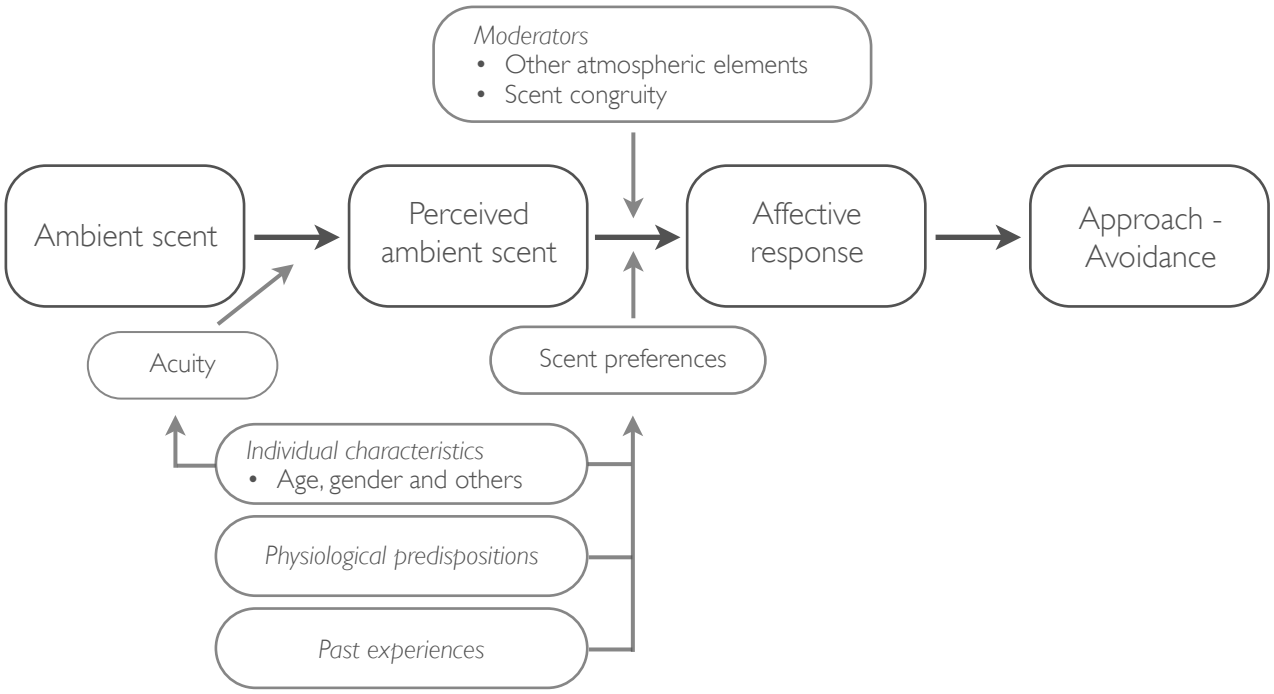


Figure 8: Influence of ambient scent on consumer responses

The perceived scent depends on the individual's *acuity*, or capability to detect scents. The individual characteristic's such as gender (women generally have a better sense of smell), age (the olfaction peaks around the age of eight), illness and smoking all affects this capability. Once the scent is perceived, *scent preferences* and *moderators* affect the response. The mentioned characteristics have a central part once again along with our past memory of scents.

The *moderators* are easily overlooked, which can be devastating. The scent needs to match the other elements of the store atmosphere and is no lone solution to a better store. High tempo music and a scent aimed to relax customers would just confuse our senses and have a reversed effect.

One of the last factors that need to be considered is the *congruency* of the scent. There is a need to understand what appeals to consumers. The use of an ambient scent in a retail environment can be beneficial if it is congruent with the shopper and the shopping objective. Mismatching between the scents and the rest of the environment or the product will confuse us and given the way our olfaction sense is made up with minimal cognition to process a scent, have a negative impact (Chebat and Michon, 2003).

3.4.2 Scents as stimuli

The intention of the stimuli is to direct the customers' toward a certain emotional state. Figure 9 shows Russell and Pratt's (1980) matrix with two dimensions of pleasant and arousal that combines to create the eight major emotional states.

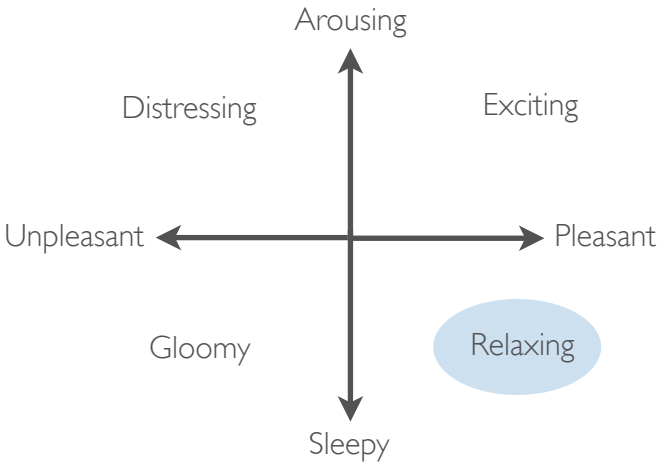


Figure 9: Dimensions of Emotions

Spangenberg et al (1996) tested twenty-five different scents in a similar experiment and ranked them after an affective and activation dimension. Affective covered measures such as being positive, good and attractive, while activation focused on being stimulating, lively and interesting.

Citrus scents scored among the best on both dimensions and have since been considered to be one of the best scents for putting individuals in a pleasant mood. They are pleasantly evaluated and not too stimulating, which would be useful in a setting where the aim was to improve the mood and relax the shoppers (Spangenberg et al, 1996). The citrus scent, which is a combination of orange, lemon and grape, shares the pleasant evaluation with the common lemon scent, but differs since it is not evoking the same associations of cleaning products. Floral scents are also popular and pleasantly evaluated, but have a tendency to appeal more to the female gender (Bone and Jantrania, 1992).

3.4.3 Changes in emotional states

Following Mehrabian and Russell's Model, the first step after adding an ambient scent in a retail setting is to observe any changes in the emotional state. Most of the academic research to date has focused on mood and its mediating role between the environmental cues such as scent and

behavior like increased spending (Donovan and Rossiter, 1982; Chebat and Michon, 2003). The research uses the PAD Scale by Mehrabian and Russell to investigate the changes in mood that takes place and the relevant emotional states for in-store atmospherics is the pleasure and arousal dimension.

The scents can be used to put the customers in a specific mood that matches the product or store, which in turn hopefully results in a desired approach behavior (Mitchell et al, 1995). In a large retail store, a citrus scent could slow down the visitors' pace and increase the likelihood of impulse purchases. An electronic store, which usually appeals more to male customers, can use a vanilla scent to entice the female customers.

Scents do have the capacity to induce pleasure and arousal, which is proven by studies that show that the mood can increase by up to forty percent (Lindstrom, 2005). Previous studies have also shown that emotional responses created due to the environment easily can transfer to the objects in that environment and the evaluation of these objects (Spangenberg et al, 1995).

There is however a limit to the relationship between scents and mood. Optimal arousal theory suggests that each stimulus, like the scents, has an optimal level that is most preferred (Berlyne, 1971). As the intensity of a scent increases, so does the mood initially. But after a certain point, reactions become negative and evaluation decreases. The result is a *Wundt curve,* or an inverted u-shaped function curve, shown in figure 10 (Richardsson and Zucco, 1989). An important aspect discovered by Spangenberg et al (1995) is that this curve differs between scents. A pleasantly evaluated scent is preferred in higher intensities, while a neutral one only is needed in low intensities to reach the optimal scent level.

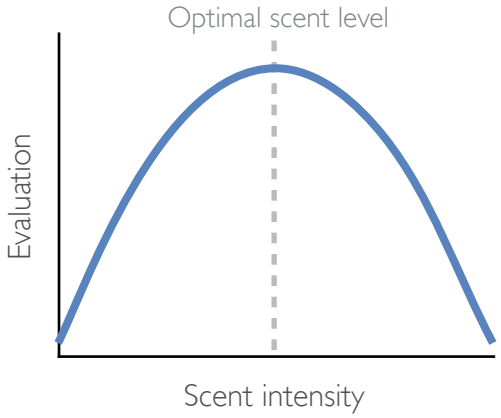


Figure 10: Intensity curve

3.4.4 Approach responses

The final outcome if a pleasant and congruent scent is used is an approach response by the customer. These responses differ depending on the situation and we will here try to summarize the possible responses that are relevant in a retail setting. Figure 11 below extends the final step of the previous model by Gulas and Bloch and shows these responses:

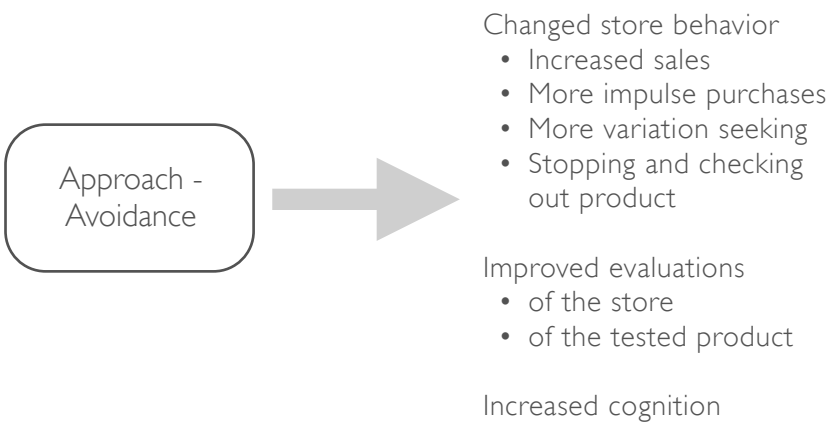


Figure 11: Approach responses

The first possible response is to change the *actual behavior* in the store. The change in behavior can for example be to spend more time in the store, be more interested in the product or willing to interact with the environment. One of the most prominent studies was done by Knasko (1989) and it found that duration spent in jewelry stores and interest in the stores' products increased when a scent was added. Two different scents were used, one floral and one spicy, and both increased the shopping times for male shoppers, while only the floral one worked for female shoppers. Lipman (1990) confirmed this finding about increased dwelling times when scents were added to other retail stores. Morrin and Ratneshwar (2003) found that while actual times in stores did not change in their experiment, perceived times did. When a scent was present, people thought they were in the stores for a shorter time than they actually were. They also found that the presence of a scent improved the attention given and that this especially favored unknown brands and products.

The most desired response in behavior is an increase of sales. Hirsch and Gay (1991) tested the evaluation of a pair of Nike shoes in a floral scented room and one odor-free room during a smaller experiment. The results were that eighty-four percent wanted to buy the shoes in the scented rooms over the non-scented rooms and these shoes were also ranked to have a higher price point.

Another study in a Las Vegas casino showed increased spending by over forty-five percent when a scent was added to the environment (Hirsch, 1995). Hirsch studied this further by adding the scents of newly baked bread to and around the bakery section. When the scent was added, sales increased with three hundred percent.

Another possible response is *improvements in evaluations* and this relates to the store, the store department and products in it. The earliest study was in 1932 when hosiery's were added with a scent to test the quality perceptions. Fifty percent of the respondents preferred the scented ones, while only eight percent preferred the unscented ones (Gulas and Bloch, 1995). Bone and Jantrania's (1992) study was mentioned previously to illustrate the importance of congruency between product and scent. Their study with sunscreen and household cleaners showed that if a compatible scent was used, overall product evaluations increased. Spangenberg et al (1995) also

found support for this when they concluded that emotional responses created due to the store environment and atmosphere easily can transfer over to the evaluations of the objects in that same environment.

A final response is the *increased cognition* and information processing by the customers. This link between scents and cognitions dates back to Laird's experiment in 1932 and have since been developed. The increased cognition can in some cases be due to enhanced attention (Morrin and Ratneshwar, 2000), while in other cases related to increased time spent on processing information. Lorig and Roberts (1990) tested scents effect on brain activity and their findings suggested that the electroencephalogram (EEG) activity was in fact due to the scents.

Mitchell et al (1995) found similar results; when an ambient scent that was congruent with the product category, the respondents spent more time processing the data, were more holistic in their processing and more likely to go beyond the information given. They were also found to consider a larger set of alternatives to make their choices. But if the scent was incongruent, the task was inhibited and cognition lowered.

4. HYPOTHESES GENERATION

From the theory presented in the previous section, we will now generate a set of hypotheses to test the empirical findings. The hypotheses are divided into four sections covering the impact on mood, changes in-store behavior, evaluations of the store and product, and finally the customers' cognitive levels.

4.1 Changes in customers' mood

Mehrabian and Russell's model that was presented in the previous section treats the *mood* as a mediator between stimuli and responses. Scent theories suggest that the presence of a scent has a positive impact on customer mood (Donovan and Rossiter, 1982; Chebat and Michon, 2003).

We therefore hypothesize that the scent stimuli leads to an improved mood state of the customers. The hypothesis H1 tests whether or not a pleasant citrus scent improves the customers' mood.

H1 *The presence of a pleasant scent improves the customers' mood*

4.2 Impact on store behavior

All the models that have been discussed previously - S-O-R paradigm, M-R model, and Gulas and Bloch - build on a similar structure with a stimuli resulting in an approach or avoidance response. The most interesting aspect of these responses is potential changes in-store behavior.

The first two hypotheses, H2a and H2b, test the impact the scent has on actual sales. The sales data was provided by ICA and covered the four-week period of the experiment. The H2a tests the sales of the tested product Head & Shoulders' Hair Defense.

It is difficult to direct the focus of the scent to one single product and we hypothesize that therefore will be effects of the scent on nearby products and possibly the rest of the store department.

H2 a) *The presence of a pleasant scent increases sales of the tested product*

H2 b) *The presence of a pleasant scent increases the sales of the products in the near vicinity*

Based on previous studies discussed, we believe that the presence of the scent will improve customers' mood and increase willingness to spend in the stores. Additionally, the scent could influence the emotional state and trigger non-conscious influences that would aid memory retrieval and the overall spending. Due to this, we hypothesize that the estimated average money spent will be greater in scented stores than the non-scented ones.

H3) *The presence of a pleasant scent increases the average perceived amount spent in the store*

The level of unplanned purchases and variety seeking is very much dependent upon the product characteristics. Shampoo is a high frequency product and related buying behavior could hence be considered habitual. Consequently, it could be assumed that habits result in low levels of unplanned purchases. However, it is a low involvement product thus driven by different motivations yet the perceived risk of a wrong purchase could be considered low.

Mitchell et al (1995) found that ambient scents could enhance customers' attention in the store and result in more unplanned purchases as well as increased variety seeking. The reason for this was the increased attention and processing resulting from adding stimuli from a congruent scent. This could impact the number of products in our consideration and preference set, which increases the chances for variation from the products usually bought.

H4a determines if the presence of the scent has any impact on the number of unplanned purchases by asking the customers who bought shampoo whether or not it was planned before they came to the store. H4b focuses on if the same customers had bought the same shampoo as they usually do or not.

H4 a) *The presence of a pleasant scent increases the number of unplanned purchases of the product*

H4 b) *The presence of a pleasant scent increases the number of variety seeking purchases in the product category*

The intense in-store competition for products to catch customer attention made it interesting to test if the added stimuli increased traffic in the shampoo aisle and affected the customers' involvement with the products. Our observations recorded whether customers passed, stopped, observed or bought the product. The last hypotheses in this section focuses on whether the customer stops and checks out the products more frequently when there was a scent present or not.

H5 a) *The presence of a pleasant scent increases the customers' interest in terms of stopping in the product aisle*

H5 b) *The presence of a pleasant scent increases the customers' interest in terms of checking out the product*

4.3 Store and Product Evaluation

As discussed in the theory section studies conducted abroad have shown that possible responses to scent stimuli is an improvement of both store and product evaluations. To test if that holds true for our experiment, H6 and H7 have been generated. Hypothesis 6 tests whether the presence of the scent creates a more favorable evaluation of the ICA Maxi stores and its atmosphere.

H6) *The presence of a pleasant scent produces more positive evaluations of the store*

Hypothesis 7 is similar as the previous one, but focuses on the evaluation of the Head & Shoulders' Hair Defense product and its attributes. Spangenberg et al (1995) found that the emotional responses created within the store environment easily can transfer to the objects in that environment and the evaluation of these objects.

H7) *The presence of a pleasant scent produces more positive evaluations of the product*

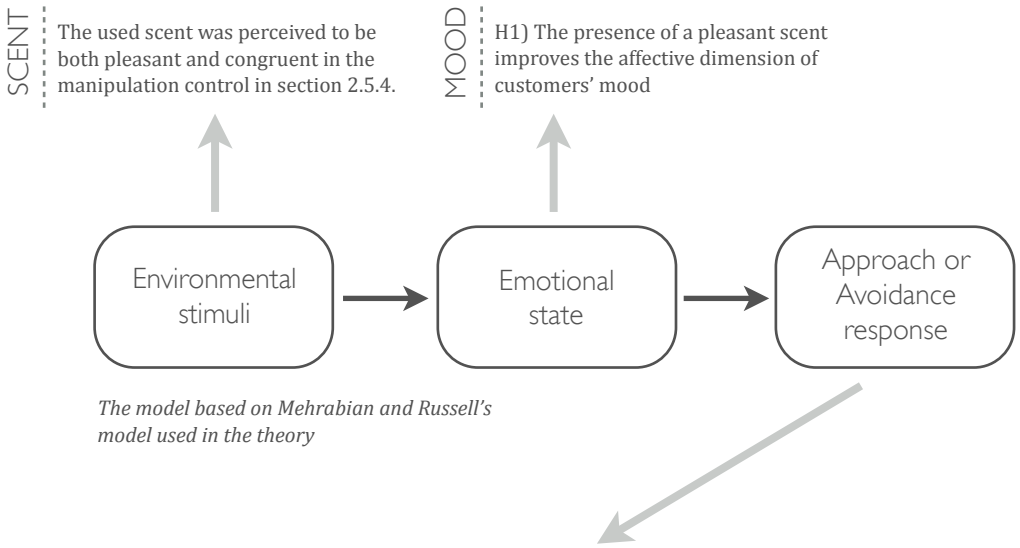
4.4 Cognitive levels

According to communication theory, getting customers attention is of crucial importance in order for processing of the communication message to take place. Based on this theory and the models involving scents, we hypothesize that the scent stimuli makes the customers more attentive and willing to process the cognitive messages on shelf signs as well as improves their ability to remember.

Hypothesis 8 tests this by investigating whether the cognitive messages on the shelf signs are more likely to be noticed and processed when there was a scent present. If a scent had this impact, customers would evaluate the product better on the attributes that were used on the shelf signs.

H8) *The presence of a pleasant scent increases the customers' cognition by making them more receptive to product arguments on the cognitive shelf signs*

4.5 Overview of hypotheses



The model based on Mehrabian and Russell's model used in the theory

STORE BEHAVIOR

H2a) The presence of a pleasant scent increases sales of the tested product
H2b) The presence of a pleasant scent increases sales of the products in the near vicinity

H3) The presence of a pleasant scent increases the average amount spent in the store

H4a) The presence of a pleasant scent increases the number of unplanned purchases of the product
H4b) The presence of a pleasant scent increases the number of variety seeking purchases of the product category

H5a) The presence of a pleasant scent increases the customers' interest in terms of stopping in the product aisle
H5b) The presence of a pleasant scent increases the customers' interest in terms of checking out the product

EVALUATION

H6) The presence of a pleasant scent produces more positive evaluations of the store

H7) The presence of a pleasant scent produces more positive evaluations of the product

COGNITION

H8) The presence of a pleasant scent increases the customers' cognition by making them more receptive to product arguments on the cognitive shelf signs

5. RESULTS AND ANALYSIS

This section will present the results obtained from the collected questionnaires, observations and sales data. The previously generated hypotheses are tested and either supported or rejected.

5.1 Changes in customers' mood

The first section includes hypothesis one and explores any changes in customers' mood during the experiment.

5.1.1 Hypothesis 1

The first hypothesis tests if *the presence of a pleasant scent improves the customers' mood* and was answered with an independent t-test. Five variables for measuring the customer mood was tested for internal consistency in order to see if they could be computed into an index. The question *I feel stressed* was unfortunately constructed in a diverging manner compared to the rest as the high mark (7) corresponds to the negative (being stressed) and the other mood questions have the positive mood response as the high mark (7). This resulted in that this question was excluded. The other four questions got a Cronbach's Alpha of 0.728 and were considered to be of sufficient correlation for indexing.

The results show that there was an improvement when the scent was present by 0.105 and the hypothesis is *supported*. Further analysis show that the activation dimension of mood improved more than the affective dimension and contributed more to the improvements in the overall mood.

Table 1: Customer mood

Variable	Scent present	No scent	Difference	Significance
Customer mood	5.502	5.397	0.105	0.01
Activation dimension	5.320	5.170	0.144	0.01

H1 *The presence of a pleasant scent improves the customers' mood* **SUPPORTED**

5.2 Impact on store behavior

The second section tests behavior in the store and includes potential changes in sales, interest in products and the nature of the purchase.

5.2.1 Hypothesis 2

Hypothesis two answers one of the most interesting questions of the thesis and that is whether there have been any change in terms of sales when we added the scent. The results are presented as relative figures and ratios of for example sales of the tested product compared to the sales of the product category. This is a more useful representation of the data since the absolute sales can differ between the stores and the relative figures shows any changes that occur better. In some cases the

number of sold products will also be used to illustrate the change in sales and offer a better understanding.

Hypothesis H2a tests if *the presence of a scent increases the sales of the tested product* and independent t-tests were performed to compare the results between scented and non-scented stores. Table 2 summarizes the most central comparisons and it is evident that the sales of the Hair Defense product increased when there was a scent present.

The sales of Hair Defense in comparison to the Head & Shoulders brand increased 16.76 percent and the share of total shampoo sales increased by 19.89 percent. The result is that the hypothesis is supported.

This increase in shares is equal to fifty-five more products sold during the experiment, which must be considered an improvement for a new product and is an increase of over thirty-six percent.

Table 2: Sales of tested product

Variable	Scent present	No scent	Difference	Significance
$\frac{\text{Total sales of Hair Defense}}{\text{Sales of Head \& Shoulders}}$	7.80 %	6.68 %	+16.76 %	0.01
$\frac{\text{Total sales of Hair Defense}}{\text{Total sales of shampoo}}$	2.17 %	1.81 %	+19.89 %	0.01
$\frac{\text{Total sales of Hair Defense}}{\text{Total sales of personal care department}}$	0.15 %	0.13 %	+15.38 %	0.01
$\frac{\text{Quantity Hair Defense products*}}{\text{Quantity hair care products **}}$	0.62 %	0.49 %	+26.53 %	0.013
Sold quantity of Hair Defense*	204	149	+55 (36.9%)	

* = Calculated based on total sales of the Hair Defense product divided by the average price of 32.90 SEK

** = Calculated based on total sales in category divided by average price of 28 SEK

H2 a) *The presence of a pleasant scent increases sales of the tested product* **SUPPORTED**

The next hypothesis, H2b, tests if *the presence of a pleasant scent increases the sales of the products in the near vicinity* of the tested product. As we pointed out before, it is impossible to focus the scent to one only product and the scent naturally spreads to the product aisle and other parts of the store department. If there is an improvement in the mood, this change should effect sales in other parts of the department as well. This hypothesis was also tested with independent t-tests from the sales data.

The results are that sales of products in the near vicinity and department did increase when there was a scent present. The sales in the department increased by 2.74 percent during the experiment

and our manipulation. The quantity of sold products also improved; Head & Shoulders sold 430 more products in the stores when there was a scent present and that is an 6.52 percent increase in comparison to the quantity of sold hair care products. The results are summarized in table 3 below and the hypothesis is supported.

Table 3: Sales of other products

Variable	Scent present	No scent	Difference	Significance
$\frac{\text{Total sales of personal care department}}{\text{Total sales of store}}$	5.99 %	5.83 %	+2.74 %	0.01
$\frac{\text{Quantity Head \& Shoulders products*}}{\text{Quantity hair care products **}}$	9.30 %	8.73 %	+6.52 %	0.013
Sold quantity of Head & Shoulders*	3064	2 634	+430 (16.3%)	
* = Calculated based on total sales of the Head & Shoulders products divided by the average price of 32.90 SEK ** = Calculated based on total sales in category divided by average price of 28 SEK				

H2 b) *The presence of a pleasant scent increases sales of the products in the near vicinity*
SUPPORTED

5.2.2 Hypothesis 3

Hypothesis three tests if *the presence of a pleasant scent increases the average amount spent in the store* and is tested with an independent t-test comparing the average amount spent in the scented and non-scented stores.

The hypothesis is based on theories that potential responses to scent could be longer time spent in store as well and trigger non-conscious influences and retrieval of forgotten memories. We therefore hypothesized that the estimated average money spent will be larger in scented stores.

The results are that there are differences between the two averages, but it was a limited difference and more importantly not significant. There was no distinction made by numbers of the different types of customers, meaning that the balance between high money spending young families and less spending older people was not kept constant. The hypothesis is thus *rejected* and no conclusions can be made about the average amount of money spent in the stores.

Table 4: Average spending

Variable	Scent present	No scent	Difference	Significance
Average money spent	655.50 SEK	641.25 SEK	+14.25 SEK	0.330

H3) *The presence of a pleasant scent increases the perceived average amount spent in the store*
REJECTED

5.2.3 Hypothesis 4

The next two hypotheses test the nature of the purchase and both were analyzed with independent t-tests. The hypotheses were answered with questions regarding the purchase in the questionnaire and required that the respondent had answered yes on the first question.

Hypothesis four tested if *the presence of a pleasant scent increases unplanned purchases of the product* and was answered by question two in the questionnaire. The result was that unplanned purchases had increased by 12.59 percent when there was a scent present. This difference was significant on a 1 percent significance level and in line with previous theoretical findings that suggested that the scent stimuli could increase the level of unplanned purchases. The hypothesis was as a result *supported.*

Hypothesis five tested if *the presence of a pleasant scent increases variety seeking in the product category* and is answered with question three in the questionnaire. The result here was a decrease in the number of purchases involving the same brand as usual and that the variety-seeking had increased. This increase in variety seeking was by 14.41 percent when the scent was present. The difference was significant at a 4.5 percent level and this hypothesis was also *supported*.

Table 5: The purchase

Variable	Scent present	No scent	Difference	Significance
Was the purchase planned?	56.90 %	65.10 %	12.59 %	0.01
Same brand as usual	48.70 %	56.90 %	14.41 %	0.045

H4 a) *The presence of a pleasant scent increases unplanned purchases of the product* **SUPPORTED**
H4 b) *The presence of a pleasant scent increases variety seeking purchases in the product category* **SUPPORTED**

5.2.4 Hypothesis 5

The final hypothesis relating to store behavior tests if *the presence of a pleasant scent increases the customers' interest in terms of stopping in the product aisle* and *checking out the product*. The observation data collected were translated into PASW and coded with numbers (1 = Pass, 2 = Stop, 3 = Look, 4 = Buy). In order to test whether the scent had an impact on the customers' behavior in the store, a cross-tabulation was performed on the difference between observed values and the expected values. This measure is based on comparing the obtained data with expected values (Malhotra and Birks, 2007).

The results show that customers were more interested in stopping, looking and buying the products when the scent was present in the store. The results for stopping and looking deviated from the expected results with over three percentage points and at a significance level of 0.01, resulting in both of the hypotheses being *supported* by the data. The table also showed that

purchases increased by 0.3 per cent and while not being significant, it does point in the same direction as the finding in the previous hypotheses that showed an improvement in sales.

Table 6: Observation data

Variable	Scent present (expected value)	No scent (expected value)	Significance
Passes	44.7% (51.0%)	57.2% (51.0%)	0.26
Stops	34.6% (31.4%)	28.3% (31.4%)	0.01
Look	16.1% (13.2%)	10.2% (13.2%)	0.01
Purchase	4.6% (4.4%)	4.3% (4.4%)	0.68
Total	*100% (100%)*	*100% (100%)*	-

H5 a) *The presence of a pleasant scent increases the customers' interest in terms of stopping in the product aisle* **SUPPORTED**

H5 b) *The presence of a pleasant scent increases the customers' interest in terms of checking out the product* **SUPPORTED**

5.3 Store and Product Evaluation

5.3.1 Hypothesis 6

Hypothesis six tested if *the presence of a pleasant scent produces more positive evaluations of the store* and was tested with independent t-tests. An index was first computed from the questions about the store and the index included the statements about good, fresh, comfortable and interesting. These questions showed an internal consistency and had a Cronbach's Alpha of 0.716 supporting a correlation. The excluded questions did not show correlation in between them either and were hence not grouped. A t-test was performed to see potential significant differences of the index with and without the scent manipulation. The results showed that there was an improvement in the evaluations when the stores had the scent present and the hypothesis was thus supported.

The remaining two variables did show a change and customers evaluated the store to be less advertising intense and of a lower stress level. These two questions did differ from the other ones since a positive answer was a low number rather than high.

Table 7: Store evaluation

Variable	Scent present	No scent	Difference	Significance
Store evaluation	5.39	5.16	+0.23	0.01
Advertising clutter	4.10	4.21	-0.21	0.01
Stress level	3.98	4.07	-0.09	0.01

H6 a) *The presence of a pleasant scent produces more positive evaluations of the store* **SUPPORT**

5.3.2 Hypothesis 7

Hypothesis seven tested if *the presence of a pleasant scent produces more positive evaluations of the product* and was tested in the same way as the previous hypothesis. The variable below is an index of all the statements. It includes attributes specific to the product that later are used to test the cognitive levels. When all product questions were tested for internal consistency a Cronbach's Alpha of 0.63 was attained. Removing the dandruff question would increase the level to 0.645 and was a result excluded.

There is an improvements in the evaluations, but the difference is limited and only with marginal significance. The hypothesis will as a result be supported with marginal significance.

Table 8: Product evaluation

Variable	Scent present	No scent	Difference	Significance
Product evaluation	3.89	3.77	+0.11	0.075

H7) *The presence of a pleasant scent produces more positive evaluations of the product*
SUPPORT WITH MARGINAL SIGNIFICANCE

5.4 Cognitive levels

The last hypothesis tests the impact scents have on the cognitive levels and if the presence of the scent can improve customers' ability to process the messages on the shelf signs.

5.4.1 Hypothesis 8

Hypothesis eight tests if *the presence of a pleasant scent increases customers' cognition by making them more receptive to product argument on the cognitive shelf signs.* We first conducted a reliability analysis on the different variables, but the Cronbach's Alpha was below the needed level and resulting in the variables not being grouped.

To answer the hypothesis, the variables were instead tested individually with independent t-tests. The results did show an improvement in evaluations, but none of the variables could be considered significant and only one marginally significant. The result was that the hypothesis is rejected, despite the analysis suggesting some improvements in the cognitive levels.

It is also interesting to look at the low customer perception of Hair Defense being a new product despite just being launched. The reason for this is most likely due to the Head & Shoulders brand being considered old and this will be mentioned in the discussion.

Table 9: Cognitive levels

Variable	Scent present + cognitive message	No scent + cognitive message	Difference	Significance
Product is new	2.72	2.56	+0.16	0.521
Protects against hair breakage	4.53	3.98	+0.55	0.11
Helps slow down hair loss	2.24	2.11	+0.13	0.894
Reduces dandruff	6.21	6.03	+0.18	0.179

H8) *The presence of a pleasant scent increases the customers' cognition by making them more receptive to product arguments on the cognitive shelf signs* **REJECTED**

5.5 Summary of results

No	Hypothesis	Result
H1	The presence of a pleasant scent improves the customers' mood	**Supported**
H2 a	The presence of a pleasant scent increases sales of the tested product	**Supported**
H2 b	The presence of a pleasant scent increases sales of the products in the near vicinity	**Supported**
H3	The presence of a pleasant scent increases the average amount spent in the store	**Rejected**
H4 a	The presence of a pleasant scent increases the number of unplanned purchases of the product	**Supported**
H4 b	The presence of a pleasant scent increases the number of variety seeking the product category	**Supported**
H5 a	The presence of a pleasant scent increases the customers' interest in terms of stopping in the product aisle	**Supported**
H5 b	The presence of a pleasant scent increases the customers' interest in terms of checking out the product	**Supported**
H6	The presence of a pleasant scent produces more positive evaluations of the store	**Supported**
H7	The presence of a pleasant scent produces more positive evaluations of the product	**Marginal significance**
H8	The presence of a pleasant scent increases the customers' cognition by making them more receptive to product arguments on the cognitive shelf signs	**Rejected**

6. DISCUSSION

The previous section presented the experiment results and the hypotheses were either supported or rejected. This section will continue to discuss these results, but also explore the purpose of the thesis in more detail and focus on the most interesting findings. After this discussion, implications of this thesis will be brought up, self-criticism of our own work and finally some words about future research in this field.

6.1 Does the use of scents work in a retail setting?

Yes, it does! The purpose of our thesis was to investigate how the presence of a pleasant and congruent scent works as a marketing tool in grocery stores and to explore the effects of the scent on customers in terms of their behavior, mood and cognitive levels. To test this, we generated a total of eight hypotheses based on the theory. The hypotheses were tested through the data collected from our triangulation that consisted of observations (n=837), questionnaires (n=628) and sales data.

The theories state that a pleasant scent would use the mood as a mediator to gain a certain approach response by the customers. The manipulation control in section 2.5.4 ensured that the selected citrus scent was evaluated as appropriate in terms of intensity, pleasantness and congruency. This test was carried out since the rest of the thesis and hypotheses assumed that this held true.

Customers' mood, which acted as a mediating factor between the stimuli and response, did improve in our experiment and the hypothesis H1 was consequently accepted. This was a good starting point since a lot of the approach responses and behavioral changes were based on this mediator. Further analysis did show that the activation dimension improved more than the affective dimension. Donovan and Rossiter (1982) suggested that improvement in activation dimensions were enough to gain approach responses if the atmosphere already was considered pleasant, which the results suggested with generally high evaluations of the pleasant attributes of the ICA Maxi stores.

The most important response from this was the increase in sales. Both the sales data and the observations point in the same direction showing this improvement. This strengthens this finding since the same pattern was found from two separate data sources. Additionally, the levels of unplanned purchases were significantly higher in scented stores than in the non-scented ones, opening up for the possibility that the scent evoked a need to purchase shampoo. The sales of the Hair Defense product increased by 19.89 percent and hypothesis 2a was accepted. Sales of other products in the near vicinity also increased and the entire store department increased its sales with 2.74 percent during our manipulation.

The reason for this is that the scents are difficult to control or direct towards one product or small area. The scent diffuses naturally and that was the case during our experiment as well. We would have preferred to investigate what products and types of brands that were affected the most, but it was difficult to do and especially when comparing this data between the stores. The stores were similar but not exact. In some of the stores the tested product were right next to other hair care products, while in others next to toothpaste products. This makes it difficult to compare, but the overall improvements of the entire section shows that the sales of nearby products certainly have been positively effected by the presence of the scent.

One possible reason for the sales increases could be the increased attention given as suggested by Morrin and Ratneshwar (2000; 2003). The Hair Defense's increase was possibly due to the fact that unknown products have a tendency to receive attention when scent stimuli is present as well due to that there were signs brining attention to the Head & Shoulders shelf during all four testing weeks.

It is also interesting to see that the scent caused the greatest increase in the tested product and did not show any signs to negatively impact sales of the rest of the category. One fear is that the new line extension in Head & Shoulders product line would cannibalize sales from Head & Shoulders other products, which did not happen during this experiment. The reason for this could be that Head & Shoulders customers are loyal to their sub-brand and that the customers purchasing Hair Defense usually did not buy Head & Shoulders shampoo and were brand switchers.

The observation data also showed a bigger change in behavior. We had no data available for actual times spent in the department, but the observations did show that significantly more customers both stopped and checked out the products in the aisle. This suggests that the scent evoked the category need, customers spent more time in the store department and were also more willing to check out the products. This change could also be connected with the finding that there were more unplanned and variety-seeking purchases when there was a scent present. A slower tempo along with a more relaxed mood would put customers in a certain sense of mind that would encourage shopping and give them opportunities to realize that they needed to buy shampoo. In line with theory regarding scents impact on risk taking, customers showed a greater willingness to switch brand when the scent was present.

One surprise was the scent's relatively small impact on evaluations. Store evaluations were improved significantly when the scent was present. We expected that the scent would improve the customers' perception of the store environment as this connection has been shown in other research and it can also be considered likely that a pleasant scent will have a positive impact on customers. Product evaluations increased as well, however not to a significant extent. We believed that the scent would improve the perceived product quality and thus contribute to improvements in sales, but this was obviously not what happened. The reason that this did not happen could be

because the scent was not connected to the tested product only and functioned as an ambient scent centered around that product. Previous research has thus shown that the presence of a background scent still could have an impact the product evaluations (Spangenberg et al, 1995).

The results do favor the Mehrabian Russell model that stimuli in the store atmosphere results in a certain response. Sales of Hair Defense increased and this increase could be explained by either better evaluation of the products, improved cognition or better mood. Alternative models question the causality and proposed that it was actually the improved product evaluations that caused increased spending (Chebat and Michon, 2003). With no such improvements in product evaluations that were significant enough, but still increases in sales, it is evident that this theory does not completely hold true in our experiment. Regarding the product evaluation, even though Hair Defense is a newly launched product, consumers set low scores on whether it was new or not. This could be due to that the umbrella brand Head & Shoulders is old and well recognized. Furthermore, we detected that the product was evaluated slightly newer, however not to a significant extend, in scented stores. We speculate that this could be the result of a larger proportion of the customers noticing the put up signs, which irrespective of being of visual or cognitive character brought attention to the product as such. However, one of the limitations of the study was to study the effect of scents through a new product introduction. Due to the low perception of that Hair Defense was new the results of the study will be more generalizable to products that are not new. In summary, under the conditions set out in the limitations section (1.4) the scent stimuli resulted in positive consumer responses in line with the discussion above.

Given the above discussion of the results it can be concluded that there are advantages of using scents as marketing tool. The second part of this thesis purpose was to investigate if scents improved customer's cognition and ability to process and remember advertising messages. The experiment did not generate any significant results to support this hypothesis, but the findings did point in the direction that scents could improve these abilities. One possible reason for these results could be that other factors influenced customers' opinion about the characteristics attributed to strong brands such as Head & Shoulders. As we previously mentioned, very few customers considered the Hair Defense shampoo to be new and this was most likely due to the general attitudes toward the Head & Shoulders brand. We do believe that scents could have an impact on cognition and memory, but our findings were not significant enough to draw strong conclusions and additional studies are needed for this.

Additionally, one could argue that the responses and changes that we observed in terms of improved mood, changed store behavior and increased sales were partially due to the novelty of the marketing method used. The first times customers experience something new, they tend to be more attentive and react more positively due to changes in the store atmosphere. We did consider this and cannot eliminate this possibility completely, but we do believe that this effect has a very

limited impact on our results due to the way the sense of smell works. Customers barely recognized that there was a scent manipulation present and compared to our other senses, such as the use of sounds in a retail store, scents registers on a more subconscious level.

Our findings were coherent with scent marketing studies conducted abroad and the theories presented of how the store atmosphere has an impact on the consumers. Consequently, their line of reasoning could be transferred to a Swedish grocery store setting and to the shampoo category therein. Finally, the thesis has shown an improved customer mood in the scented stores, which can benefit can effect the shopping behavior in the rest of the store. If the mood is a mediator to approach responses in this department, then this improved mood can definitely impact the decisions taken during the remainder of the shopping trip.

6.2 Implications

The results of the thesis provide evidence of the potential effects of using scents in marketing and how these scents can affect customers. The findings are interesting and valuable for several different actors within marketing in general and more specifically retail stores. Implementing scents in ones business can be an efficient way of changing customer behavior, alter mood states and potentially increase sales. The scent did fulfill the marketing objective of the retailer as it generated higher sales revenues and put the customers in a better mood. As scent marketing would benefit both the store and individual brands, it should definitely be considered to be implemented in the marketing mix.

The greatest potential in scent marketing might perhaps not be in grocery stores where there already is a certain level of scent present. There are however a large range of other types of stores that easily could implement the use of scents and entice our sense of smell. Clothing stores are one example and they already work extensively with their atmosphere when it comes to lighting, music and social factors. Restaurants could disperse a scent associated with their food cuisine outside their locations. Travel stores could use a scent such as coconut to put their potential customers in a certain mood. Large store malls could have an ambient scent to put the visitors in a better mood, slow down their pace and improve the overall store atmosphere.

Brands can also benefit from using scents and have a great opportunity to add a dimension to their brand image. Companies spend large sums of money on designing their brand identity with names, slogans, logos and color schemes. With the proven benefits of scents, we do believe that the implementation of scents could add an additional dimension to this identity that allows for an emotional connection that the traditional methods do not. The method has primarily been used by travel and hotel firms who focus on offering customers an experience, but we do not believe it is limited to these types of businesses.

Additionally, we believe it is a relative cheap way to differentiate a store and make it unique. The cost effectiveness of using scent and scent machines has not been discussed due to the focus on the effects of the scents. The machines used in the experiment have the capacity to cover areas up to 370 square meters and costs around 3000 SEK. The scent cartridges costs approximately 1500 SEK and lasts one month. The services are often leased and the machines are provided with a twelve-month contract (Manthos, 2009). The costs are substantial, but relative little compared to other alternatives of in-store marketing such as installing televisions or sound systems. As a result, it is our initial belief that scent marketing is relatively cost effective and especially considering the potentials benefits and returns of using scents.

Finally and very importantly, customers were very open-minded to the presence of scents. During the experiment that lasted four-weeks and exposed several thousand customers to the scent, only one complaint was filed and that was from an employee. That complaint was from a department manager early on in the experiment, which made us a little reserved to increase the scent levels. Amongst the customers who asked and received the information pamphlet (Appendix 8.8), not a single one shared any concerns or was negative to our experiment and manipulation of the natural scent scene in the store. This tells us that customers are used to being exposed to all kinds of marketing techniques and ready for the use of scents.

6.3 Criticism

We believe that the purpose of this thesis, which was to explore the potential usage of scents in a retail store environment, has been achieved. There are however some issues that is worth mentioning and that could have been improved.

In all natural experiments and especially in grocery stores, there will always be noise and it will never be possible to exclude external factors completely. We did try to control these factors as much as possible and the location of the store department early in the stores aided in this by limiting the interaction with store personnel and other elements of the store. Even though the stores used in the experiment are similar in many ways, they were not identical and did for example differ in sales volume. This was especially evident during the Easter holiday. In setting up the Latin Square design, maybe we should have considered this and improved the validity of the results if we had grouped the stores with the highest and lowest total sales together instead.

The discussion brings up possible cannibalization effects and the possibility that the new product Hair Defense achieved sales at the expense of other Head & Shoulders products or that the stronger brand such as Head & Shoulders benefitted at the expense of other weaker brands. This was a possibility that we actually did not consider prior to the experiment and maybe should have done. The questionnaire could have asked if the customers bought as many shampoo as before or possible what brand they usually bought and had switched from.

Our data collection for the questionnaires and observations are from the weekends only. Customer behavior is known to differ between weekdays and weekends, and while it is would be interesting to study both aspects it was a choice we had to make in designing the experiment. This criticism does not involve the sales data, which included week days as well. We also initially did find it interesting to measure the time spent in the store department, but due to complexity of recording such data for a large number of customers we did not have the possibility to do this.

Finally, our focus throughout the experiment has been on the approach responses by the customers and increase in sales. We have excluded the costs associated with installation and operating the machines. The topic is touched upon in the implication section and we believe it is relatively cost effective, but it is should be mentioned that the focus have not been on studying this aspect.

6.4 Future research

While this thesis provides a good starting point for using scents in retail stores and how this can work on the Swedish market, future research is recommended to get a better understanding of the effects and to extend the experiment in other settings. Examples of interesting settings would be the previously mentioned travel agency or clothing stores. The store atmospheres are very important in these types of stores and the customer mood also plays a central role in their behavior.

Further manipulation of the scents would also be very interesting to study. The pre-test hinted at several differences between scents, but it would be useful to know what scents are preferred by different customers based on their gender, age groups and the type of shopping. Some research has been done in this field, but it is limited and it is believed that these preferences can differ substantially between various regions of the world (Gulas and Bloch, 1995).

Another potential area for future research is to explore how the presence of a scent affects the perceived and actual times spent in the stores. It is a limitation of our thesis that has been discussed and we decided to ignore this due to complexity of such a measure and focus on other effects instead.

Finally, scents are part of the store atmosphere and the interplay between these different elements would also be interesting to study further. There are known synergy effects between music and scents (Mattila and Wirtz, 2001), but it would be interesting to explore this further and investigate how scents work together with lightning, store layout and more service oriented stores for example.

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8. APPENDIX

8.1 Signs and messages used

The signs and messages used in stores during the experiment. Six signs was present each week. 3 x Sign 1 was always present and then combined with either:

a) 3 x Sign 2 for a visual message

b) 1 x Sign 3-5 for a cognitive message



Sign 1: General sign



Sign 2: Product image



Sign 3: Message I



Sign 4: Message II



Sign 5: Message III

8.2 Images of scent machine and store shelves



Image 8.2.1: Aisle in Nacka ICA Maxi Nacka



Image 8.2.2: Store shelf in Nacka ICA Maxi Nacka



Image 8.2.3: Shelf sign in store



Image 8.2.4: Scent machine at ICA Maxi Lindhagen



Image 8.2.5: ScentWave machine



Image 8.2.6: Scent cartridge

8.3 Pre-test questionnaire to select scent

Pretest: Scent

Börjar med ☐ Mountain Mist ☐ Lemon Fresca

Del 1: Mountain Mist

1. Betygsätt doften du precis luktade:

Dåligt	1	2	3	4	5	6	7	Bra
Negativ	1	2	3	4	5	6	7	Positiv
Okänd	1	2	3	4	5	6	7	Bekant
Kvinnlig	1	2	3	4	5	6	7	Manlig
Väldigt svag	1	2	3	4	5	6	7	Väldigt stark

2. Vilka associationer får du av doften?

_____

3. Hur väl passar doften in i avdelningen Hälsa & Skönhet?

Inte alls	1	2	3	4	5	6	7	Mycket väl

Del 2: Lemon Fresca

4. Betygsätt doften du precis luktade:

Dåligt	1	2	3	4	5	6	7	Bra
Negativ	1	2	3	4	5	6	7	Positiv
Okänd	1	2	3	4	5	6	7	Bekant
Kvinnlig	1	2	3	4	5	6	7	Manlig
Väldigt svag	1	2	3	4	5	6	7	Väldigt stark

5. Vilka associationer får du av doften?

_____

6. Hur väl passar doften in i avdelningen Hälsa & Skönhet?

Inte alls	1	2	3	4	5	6	7	Mycket väl

Del 3: Övrigt

7. Vilken doft föredrar du?

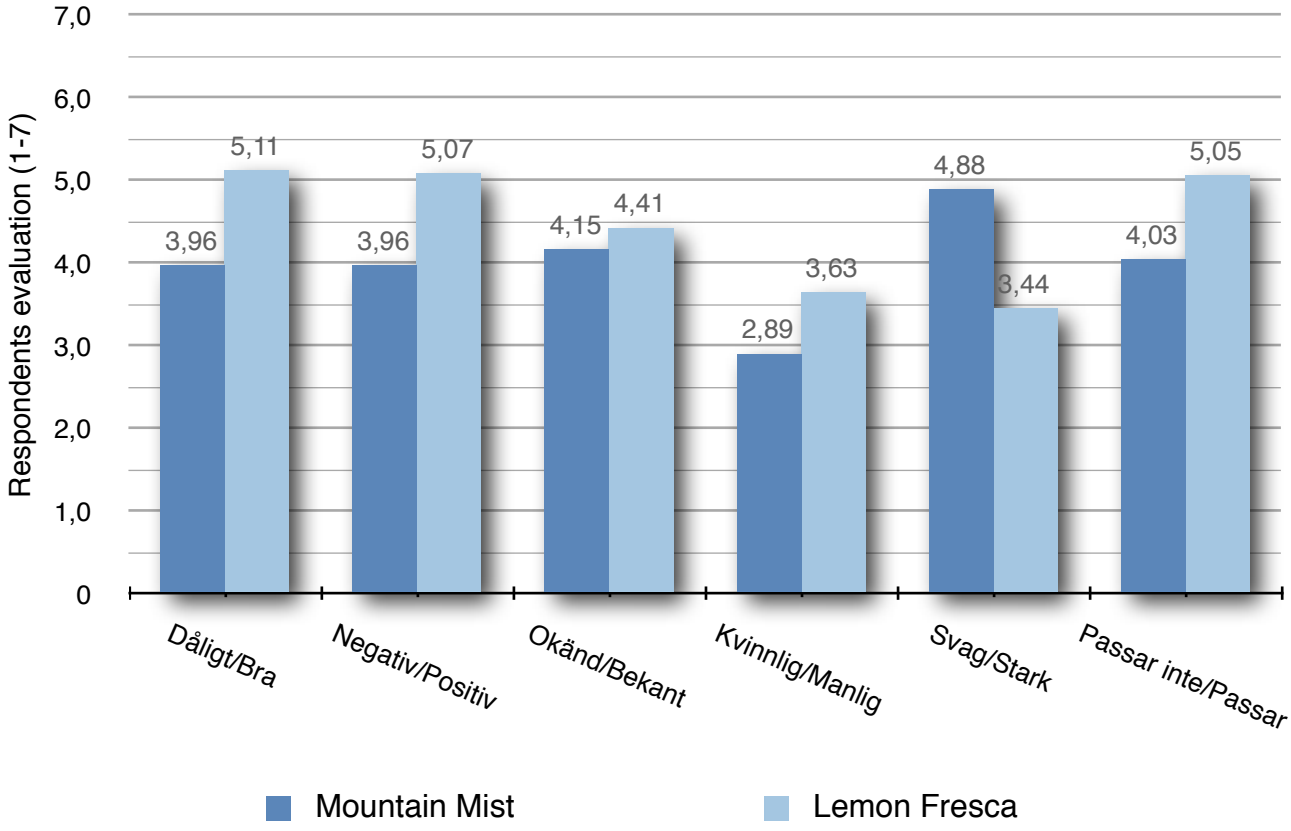
☐ Mountain Mist ☐ Lemon Fresca

8. Ålder: _____

9. Kön: _____

8.4 Results from pre-test to select scent

The results from the pre-test are shown below. There were a total of 27 respondents. 12 were female and 15 male. 14 respondents were exposed to Mountain Mist first and 13 to Lemon Fresca. 21 respondents preferred Lemon Fresca and 6 Mountain Mist.



8.5 The questionnaire

Datum: _____ *Butik:* _____ *Intervjuare:* _____

KUNDUNDERSÖKNING

Hej! Jag skriver mitt examensarbete på Handelshögskolan och vill ställa ett par frågor kring ditt besök här på ICA Maxi idag.

1. Har du köpt schampo idag?

☐ Ja ☐ Nej Vid nej --> gå till fråga 4

2. Var detta köp planerat?

☐ Ja ☐ Nej

3. Köpte du samma schampo som du brukar göra?

☐ Ja ☐ Nej

4. Är Du ansvarig för ditt hushålls inköp av schampo?

☐ Ja, helt ☐ Ja, delvis ☐ Nej

5. Head & Shoulders har ett schampo som heter Hair Defense. På en skala 1-7, där 1 är stämmer inte alls och 7 är stämmer helt, skulle du bedöma följande påstående?

Produkten är av hög kvalité	1	2	3	4	5	6	7
Produkten är prisvärd	1	2	3	4	5	6	7
Produkten är en nyhet	1	2	3	4	5	6	7
Produkten skyddar mot hårslitage	1	2	3	4	5	6	7
Produkten reducerar mjäll	1	2	3	4	5	6	7
Produkten motarbetar tunnhårighet	1	2	3	4	5	6	7

6. Nu några snabba frågor om denna butik. På en skala 1-7, där 1 är stämmer inte alls och 7 är stämmer helt, skulle du bedöma följande påstående?

Butiken är bra	1	2	3	4	5	6	7
Butiken är behaglig	1	2	3	4	5	6	7
Butiken är fräsch	1	2	3	4	5	6	7
Butiken är bekväm	1	2	3	4	5	6	7
Butiken är uppmuntrande	1	2	3	4	5	6	7
Butiken är intresssant	1	2	3	4	5	6	7
Butiken är stressig	1	2	3	4	5	6	7
Butiken är reklamtät	1	2	3	4	5	6	7

7. I livsmedelsbutiker möts du av ofta av olika ljud, ljus och dofter. Hur bedömer du doften här i butiken? På en skala 1-7, där 1 är ofräsch och 7 är fräsch, vad tycker du?

Ofräsch	1	2	3	4	5	6	7	Fräsch
Negativ	1	2	3	4	5	6	7	Positiv
Kvinnlig	1	2	3	4	5	6	7	Manlig
Inte god	1	2	3	4	5	6	7	God
Svag	1	2	3	4	5	6	7	Stark
Opassande	1	2	3	4	5	6	7	Passande
Inte tilltalande	1	2	3	4	5	6	7	Tilltalande

8. På en skala från 1 - 7, där 1 är stämmer inte alls och 7 är stämmer helt, håller du med om följande påstående?

Jag känner mig nöjd	1	2	3	4	5	6	7
Jag känner mig glad	1	2	3	4	5	6	7
Jag känner mig stimulerad	1	2	3	4	5	6	7
Jag känner mig alert	1	2	3	4	5	6	7
Jag känner mig stressad	1	2	3	4	5	6	7

9. Ungefär hur mycket pengar tror Du att Du kommer spendera idag:

_____ kronor

10. Ålder: _____

11. Kön: ☐ Kvinna ☐ Man

Det var allt! Tack så mycket för din medverkan!

8.6 Observation sheet

The observations sheet used to track customers behavior in the department.

Datum: _____ Butik: ☐ Lindhagen ☐ Nacka ☐ Sundyberg ☐ Haninge Person: ☐ Ann ☐ Jacob Annat: ☐ Doftsatt ☐ Reason to believe

	Kön	Passera	Stanna	Titta	Köpa
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
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40					

	Kön	Passera	Stanna	Titta	Köpa
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42					
43					
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8.7 Information to store

The information given to the stores and their personnel during the experiment.

Pågående doftexperiment

Först och främst tack för att vi får göra experimentet till vår examensuppsats på ICA Maxi. Vi är två studenter från Handelshögskolan i Stockholm och resultaten från undersökningen kommer enbart att användas inom ramen för vår uppsats.

Experimentets syfte är att testa hur dofter påverkar kunderna i en butiksmiljö. Genom att exponera dem för en doft så undersöker vi om tillförseln av doft påverkar försäljning, kundernas känslor och attityd samt bedömning av butiken. Doften är en citrusdoft med inslag av blomnoter och trä. Ett femtiotal personer har deltagit i en förstudie för att ta fram doften och den är självklart helt allergifri.

Undersökningen kommer att pågå i Hälsa & Skönhet avdelningen under fyra veckor med start vecka 10. Under två av dessa fyra veckorna kommer en svag doft att kännas. Om ni skulle uppleva den för stark eller störande på annat sätt är ni mycket välkomna att kontakta oss så kommer vi och korrigerar det omgående.

Reklamskyltar som sätts upp runt Head & Shoulders produkter är en central del av experimentet och måste stanna uppe under hela tidsperioden.



Vi ber även er att inte diskutera detta med familjer och vänner för att säkerhetsställa kvalitén på undersökningen.

Vid övriga frågor tveka inte att kontakta någon av oss!

Tack för er hjälp!

Jacob Leander-Olsson
jacob.leander.olsson@gmail.com
070-5431616

Ann Wenehed
ann.wenehed@gmail.com
070-4069220

8.8 Information to customers

Information pamphlet distributed to customers that requested more information.

Tack för din medverkan!

Först och främst tack för att Du hjälpt oss samla in material till vår examensuppsats. Vi är studenter från Handelshögskolan i Stockholm och resultaten från undersökningen kommer enbart att användas inom ramen för vår uppsats.

Experimentets syfte är att testa hur dofter påverkar Dig som kund i en butiksmiljö. Genom att exponera kunderna för en doft som är direkt relaterad till produkten, så undersöker vi om tillförseln av doft påverkar försäljning, kundernas känslor och attityd samt bedömning av butiken. Doften är en citrusdoft med inslag av blomnoter och trä. Ett femtiotal personer har deltagit i en förstudie för att ta fram doften. Den är självklart helt allergifri.

Undersökningen kommer att pågå under under fyra veckor med start v.10. För att säkerhetsställa kvalitén på det insamlade materialet så ber vi Dig att inte delta mer än en gång under denna tidsperiod samt att inte nämna detta för vänner och familj som kan tänkas besöka ICA Maxi butiker inom de närmaste veckorna.

Vid eventuella frågor, synpunkter eller önskan om en kopia av arbetet när det väl är klart, tveka inte att kontakta oss!

Jacob Leander-Olsson
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Ann Wenehed
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