Olfactory Purchases - How does scent influence the consumer's decision-making process?

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Abstract

This study focuses on two main themes, Scent Marketing and Consumer Behavior. The main objective is to evaluate whether the implementation of a pleasant odor has an impact on consumer behavior at the point of sale.

This research collected answers for the question presented, through the elaboration of a questionnaire to evaluate if the introduction of a pleasant scent impacted, in a positive way, the intention to revisit the store, the overall store image, the perceived environmental quality of the store, the overall evaluation of the products and the satisfaction with the employees.

The study started on June 5th and ended on July 8th of 2019. The first two weeks the experience took place at the Worten Mobile at Amadora and the last two weeks were in the Worten Megastore at Amadora. To have more stable results, the stimulus was programmed to be switched on one day and switched off the consecutive day.

The data analysis allowed to conclude that the introduction of a scent considered pleasant, in a store environment influences positively the store sales, the overall store image, the perceived environmental quality of the store, the overall evaluation of the products and the satisfaction with the staff. With the analysis it was also possible to conclude that the scent decreases the perception of time.

Keywords: Scent, Scent Marketing, sales, experimental study.

Resumo

Este estudo centra-se em dois temas principais, o Marketing Aromático e o Comportamento do Consumidor. O objetivo principal foi avaliar se a implementação de um aroma considerado agradável tem impacto no comportamento do consumidor no ponto de venda.

Esta pesquisa reuniu respostas para a questão por meio da elaboração de um questionário para avaliar se a introdução de um aroma agradável impactou, de forma positiva, a intenção de revisitar a loja, a imagem geral da loja, a qualidade percecionada do ambiente da loja, a avaliação global dos produtos e a satisfação com os funcionários.

O estudo começou no dia 5 de junho e terminou no dia 4 de julho de 2019. As duas primeiras semanas foram na Worten Mobile na Amadora e as duas últimas semanas foram na Worten Mega na Amadora. Para obter resultados mais estáveis, o estímulo foi programado para estar presente num dia e não estar no dia consecutivo.

Depois do estudo experimental as análises provaram que a introdução de um aroma considerado agradável, influencia positivamente as vendas, a imagem geral da loja, a qualidade percecionada do ambiente de loja, a avaliação geral dos produtos e a satisfação com os empregados da loja. Também foi possível concluir que o aroma diminui a perceção do tempo.

Palavras-chave: Aroma, Marketing aromático, vendas, estudo experimental.

Executive summary

Marketing techniques that can effectively persuade customers to buy products and interact with the brands have been subject of study for many years.

When it comes to consumers, the secret to increase sales is understanding consumer behavior, which patters they follow before buying, how customers make purchase decisions and what drives people to those decisions.

Nowadays the most successful brands are the ones who follow customer-based management and can create a bond with the customer by delivering feelings and emotions.

One of the most important stimuli studied in the last years is the senses (sight, smell, sound, taste, and touch) and is through them that we interact with the world and create memories in our brain (Lindstrom, 2005).

Introduction

For a stimulus to have an impact, the customer must perceive it, he must "see" or "hear" it; however, with the scent, the retailers have a unique opportunity among the other senses because they can introduce a smell that will be "perceived" even if the customer does not pay attention to it (Ward, Davies, & Kooijman, 2007).

The studies about how senses can influence customers were mainly focused on the real impact on customer behavior and emotions but has been poorly approached in a laboratory, rather than in real stores.

The main objective of this thesis will be to understand which are the impacts when a brand decides to scent their stores on two separated areas:

- Financial area, such as the sales;
- Branding aspects, for example, brand loyalty and brand image.

To achieve this objective the focus of the empirical analysis will be causality, that is, the relationship between, for example, the cause (scent) and the effect (sales).

To make a good analysis of the literature review will be necessary to divide the topics in the senses and their importance, the Neuromarketing and finally the scent and its importance to marketing. The three topics are interlinked but only after knowing the basic concepts it is possible to understand the scent importance and those correlations.

At the end of the thesis is expected to be concluded on this subject and fill the existing gap in the previous studies subject of literature review.

Problem contextualization

In recent decades, brands have been trying to change the way they communicate with customers. Marketing went through several evolutionary stages (Keelson, 2012).At first, the only thing that mattered was sales, focus only on production and one-way communications because, at the time, a good product could be sold by itself. Over time the saturation of markets led to a more strategic approach and Marketing as we know now started to emerge. (Keelson, 2012)

Marketing has shifted from a standardized mass-production focus to the marketing of relationship and interaction between the seller and the buyer, and currently to a marketing focused on the consumer experience and based on the five senses (Hultén, 2011).

Nowadays companies are focused on Customer Relationship Management (CRM) to build customer loyalty and create a relationship between company and consumers, with multidimensional communications and even real-time connection using social media.

One of the most important reasons for this change is that, based on Kotler's idea, the cost of attracting a new customer is five times higher than maintaining a current customer happy (Lindstrom, 2005).

In the marketing world, brands fight so hard for the customers that, from time to time, new ways of capturing their attention are built, but customers are far more skilled at ignoring and skipping ads, paying them no attention at all.

The emotional connection between brand and consumer is very important to build strong brands because consumers buy emotional experiences rather than products and services alone (Hultén, 2011).

Research shows that two-thirds of the purchasing decisions are impulsive decisions, made during the shopping time, at a store and half of the customers affirms that the atmosphere may influence them to remain at the point of sale longer and therefore buy more (Wala, Czyrka, & Fras, 2019). With these two aspects in mind, one of the most promising marketing technics to create a new relationship with the customers is scent marketing.

Literature Review

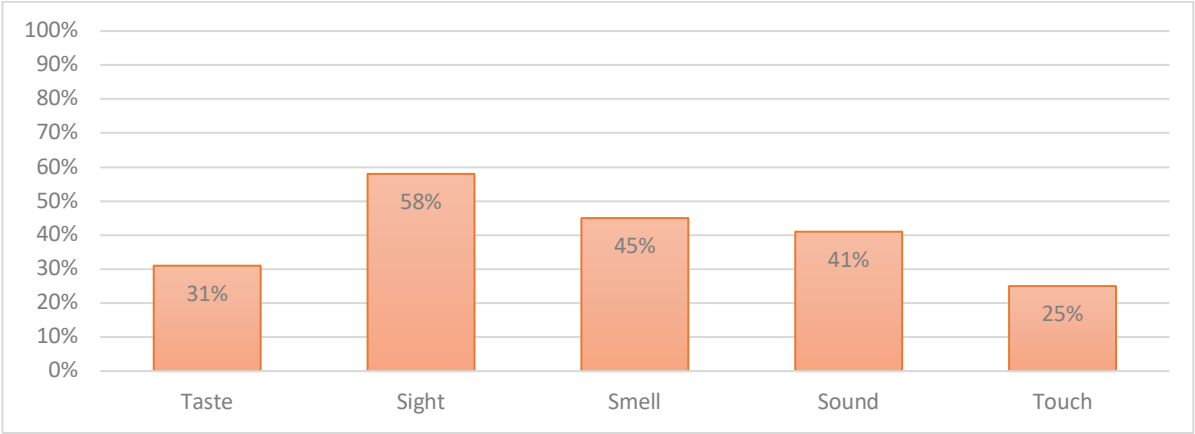
The senses and their importance

A sense is a group of sensory cells that respond to specific sensations, delivering perception. The human being process external information using the five senses: sight, taste,

sound, smell and touch, and using those tools we perceive and interpret the world around us (Mealey, 2013).

All the senses are incredibly important in helping us process external information and shape our thoughts, principles and therefore, behaviors. (Lindstrom, 2008).

Figure 1- The importance of senses



Source: (Lindstrom, 2005)

As we can see through the graph, the smell is the second most important sense, just after sight. Contrary to Lindstrom (2005), studies conducted by Dr. Trygg Engen proved that our ability to recall scents and odors are much stronger than our capacity to recognize what we have seen (Engen & Ross, 1973).

Brakus et al. (2009) stated that brand experiences are divided into four dimensions: sensory, emotional, intellectual and behavioral; and the sensory dimension is focused on visual, auditory, olfactive, gustative and tactile sense.

In a world where customers are overexposed to visual content, they start to ignore those messages and the attention decreases, so it is very important to impact other senses. Studies about implicit odor (how odor influences feelings, judgments, and behaviors) support that a fragrance is an important factor in the purchase decision and even after, when people collect and use the product (Lindstrom, 2005).

Neuromarketing

While people assume that a consumer buys a product because of its features or price, that is, rational purchase, neuromarketing tells us something different. Each experience brand-related becomes part of our understanding of the brand and it will determine if we identify ourselves with those values. In the end, we buy products because they define us and share the same values and ideals we have (Ciprian-Marcel et al., 2009). In traditional marketing

communications, we have the seller who represents the emitter and the consumer as the receptor, but in neuromarketing is the opposite, brands need the information of the customers about the products they want (Ciprian-Marcel et al., 2009).

When we talk about consumer behavior we are implicitly talking about neuromarketing or consumer neuroscience. More than 90% of the information is processed subconsciously in the human brain and this process plays a large role in consumer decision making (Agarwal & Dutta, 2015).

If companies knew exactly how people think, they could offer what customers want, and that is where the neuromarketing comes in. This combination of science and marketing understands the motivation of the subconscious, what drives the customer to act the way he acts and how he responds to a marketing strategy by measuring brain activity (Ciprian-Marcel et al., 2009).

Christophe Morin (2011) states that some human features are brain "buy buttons", one of those buttons is emotional. He states that "Give us the right emotion to ride on, and we'll buy what you're selling"(Ciprian-Marcel et al., 2009) and explains that we only remember experiences that have emotion attached because when the brain is faced with emotional stimuli, it creates a chemical change that will make us memorize. It is important to know that emotions are the way our brain encodes value and a brand that can engage customers emotionally will always win (Lindstrom, 2008).

Sensory marketing

The big question is what to do now that customers are much more skilled and demanding, and the answer can be very simple – appeal to the basic and essential part of the human being, the senses (Krishna, 2012).

The decisions that we make are both based on conscious and non-conscious processes that occur in the brain and the non-conscious processes have a major impact on the decision-making process (Agarwal & Dutta, 2015).

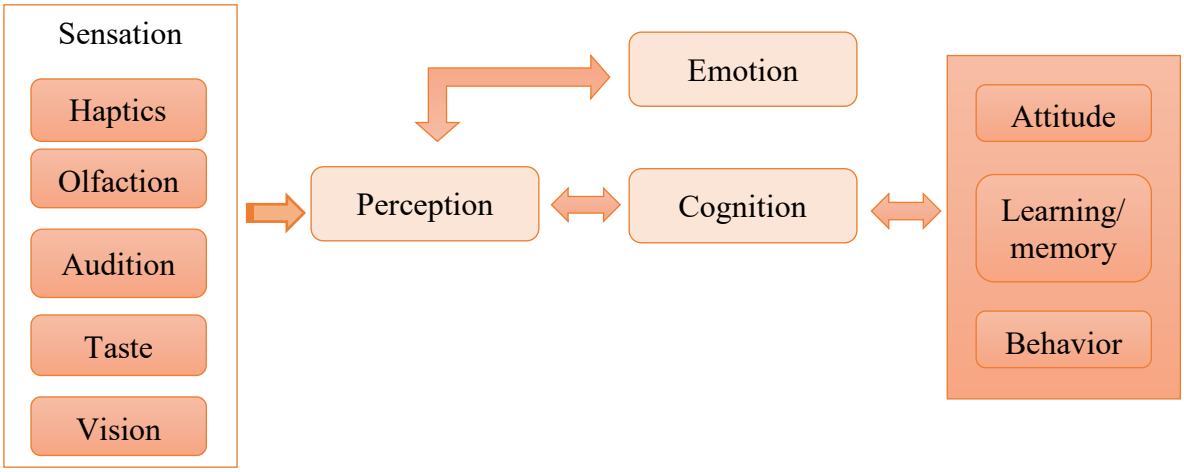
Sensory marketing is the marketing technique that involves the consumer's senses and affects their perception, judgment, and behavior (Krishna, Cian, & Sokolova, 2016), by engaging nonconscious stimuli over the senses, the consumers do not perceive them as a marketing strategy and therefore do not react with resistance.

Given the number of obvious marketing technics that consumers are bombed every day, subconscious stimulus, that appeal to the basic senses, would be a much more effective way to attract consumers (Krishna, 2012). Through the senses, this technique has the objective of

winning a customer's trust and attention and is one of the smartest ways to generate emotion and retain loyalty. The more deeply one can connect emotionally with the customers, the more they will remember the brand (Lindstrom, 2005).

Krishna (2012) states that sensation is different from perception and both are very important in consumer decision making (Figure 2). The sensation is when the stimulus affects the receptor cells of a sensory organ and perception refers to the awareness of the stimulus, it is how consumers attend and comprehend stimuli (Bradford & Desrochers, 2009). This difference is very important because it is linked with the behaviors and attitudes of the consumers.(Krishna, 2012)

Figure 2- Sensation and perception



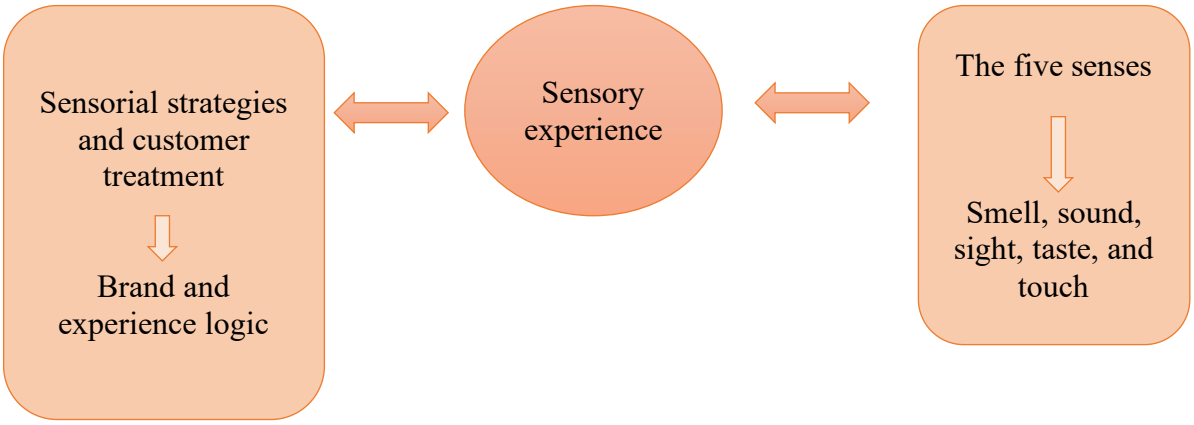
Source: (Krishna, 2012)

More and more brands are focused on consumer experience, that is, customer involvement at different levels, as to the interaction between them and the products (i.e. emotional level, rational and physical) (Moreira, Fortes, & Santiago, 2017).

The experience that customers have with the brand becomes an image that constitutes the outcome of the multisensory experience within a brand perspective. This global perspective is defined by beliefs, feelings, thoughts and opinions about the brands, based on the overall experience (Hultén, 2011).

This customer experience is enhanced by sensory marketing that will strengthen the relationship between the brand and customers on a deeper level, perceiving the brand as unique, encouraging them to repeat the experience resulting in a stronger brand image and recognition (Hultén, Broweus, & van Dijk, 2009), generating customer loyalty and increasing the brand equity (Moreira et al., 2017).

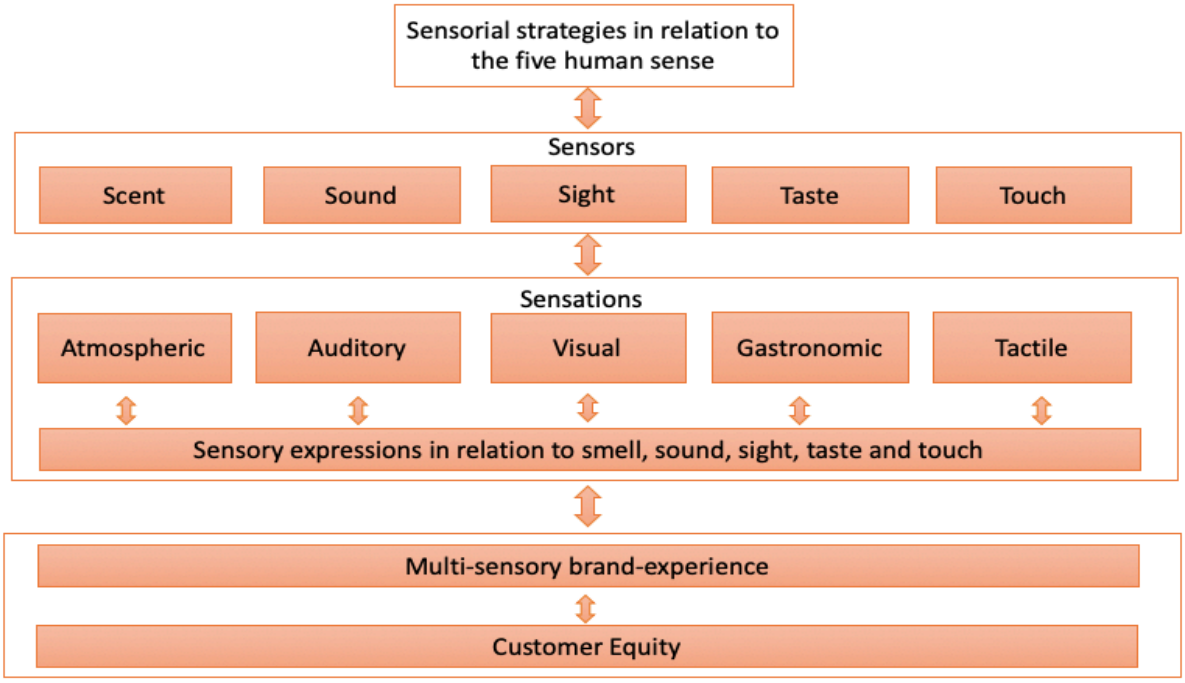
Figure 3- Sensory experience



Source: (Hultén et al., 2009)

The model presented by Hultén (2009) shows that sensory marketing is a way of treating customers in a much more personal way than was previously achieved with mass marketing. Each has a personal and individual experience and it is called "experience logic" which is a result of how the individual's five senses perceive and interpret an experience (Hultén et al., 2009). Further on the research, Hultén (2011) created the SM-model (Sensorial Marketing model) that defines the way brands can differentiate and express themselves through sensorial strategies to relate to customers on a deeper emotional level. A sensorial strategy is when the strategy appeals to a certain sense or senses and it is important to differentiate a brand from its competitors especially when price or quality is very similar.

Figure 4 - SM Model



Adapted from (Hultén et al., 2009)

The main conclusion of the SM-model is the importance of the multi-sensory brand-experience in differentiating, distinguishing and positioning a brand. (Hultén, 2011).

Scent

Sight and sound are 99% of all brands' communications however the scent is the strongest sense of the five because it is the only one we cannot control or turn off, it is in the air we breathe and it is around 20000 times a day (Lindstrom, 2005).

The sense of smell differs from other senses because it is located in the right side of the brain and has direct connection with the limbic system of the brain, which, directly connects to the amygdala, our emotional core, and the hippocampus, the memory center in the brain (Emsenhuber, 2009) (Davies, Kooijman, & Ward, 2003). The awareness of the smell always triggers emotional reactions because there is no way to avoid smelling or to filter the smell (Lindstrom, 2008).

The acknowledgment of smells starts in the embryonic phase and all the odors that we smell are saved in combination with our emotions and memories (Emsenhuber, 2009). During our lives, we can recall 10000 different odors that can evoke different memories or emotions. (Lindstrom, 2005).

Of all our senses, the smell is the most primitive, it was through the smell that our ancestors develop the taste for food, seek for a partner or detected the enemies' presence. The

sense is so powerful that when we acknowledge the smell of the product our brain activates the same region as seeing the product, and can even evoke the image of the product's logo. For example, when we smell a donut we can imagine it in our mind with our favorite donut's brand or when we smell coffee in the morning we can imagine it on our kitchen table (Lindstrom, 2008).

Pam Scholder Ellen, professor of Marketing in Georgia, says that "With all the other senses we think before we react but with the smell, we react before thinking" (Lindstrom, 2008 p.54).

Several studies proved the link between scent and memory. A study carried out at the Rockefeller University proved that in the short term we remember just 1% of what we touch, 2% of what we hear, 5% of what we see, 15% of what we taste and 35% of what we smell. Engen and Ross (1973) proved that the ability to recall scents decays very little throughout time with minimal reductions in recognition accuracy from seconds to months after exposure; they showed that odor recognition reduced from 70% immediately after exposure, to 65% after 1 year. Memories for other senses decline at a much faster rate; for example, the recognition for pictures dropped from 99% when immediately after exposure, to 58% when measured 4 months later (Krishna, 2012).

Olfaction Process

Odors are molecules that float in the air. When we breathe, the air enters the nostrils and goes to the nasal passages where the odor molecules settle on a mucous membrane called the olfactory epithelia. This membrane contains olfactory sensory neurons that are small nerve cells covered with cilia (dendrites of olfactory neurons that have odorant receptors at their tips) that project into the mucus that lines the nasal epithelium (Herz, 2001).

From the olfactory bulbs, sensory information goes to the primary olfactory cortex that is connected with the limbic system, the part of the brain responsible for emotion (Herz, 2001).

The limbic structures that connect with the olfactory system are the amygdala, hippocampus, and hypothalamus (Annex A). The hippocampus is involved in associative memory and the amygdala is involved in the expression and experience of emotion. The connections between the olfactory area and the amygdala and hippocampus are more direct than the connections between these brain areas and any other sense. This direct link explains why odor-evoked memories are distinguished from other types of memories by their emotional potency (Herz, 2001).

We have between 10 and 20 million olfactory receptors and this is more receptors than we have for any other sense except vision but, when we contrast with bloodhound, which has about 200 million receptors, we conclude that we are poor smellers (Herz, 2001).

How and why odors produce the effects that have been seen on mood, behavior and physiology are the most important questions and two mechanisms for the psychodynamic and physiological effects of odor have been proposed: a pharmacological and psychological hypothesis(Herz, 2009).

The pharmacological hypothesis proposes that the effects are due to the intrinsic and direct ability of the odor to interact and then affect the central nervous system and the endocrine systems (Herz, 2009).

The psychological hypothesis focusses on the emotional part, suggesting that odors have an effect through emotional learning, conscious perception and expectations. This hypothesis proposes that responses are learned through association with past emotional experiences. Odors consequently adopt the properties of the related emotions and apply the accordant emotional, cognitive, behavioral and physiological effects themselves (Herz, 2009).

We start to learn the meaning of odors while still in the womb and throughout our lives, we acquire the emotional meaning of odors through experience, but first experiences are crucial. What we think an odor is, shapes our responses to it but when we talk about smelling things we have never smelled, without labels or sources, the answer is based on smells already found and considered pleasant or unpleasant. (Herz, 2001)

When we enter a store that has a peculiar smell, it takes 20 minutes before we no longer smell it, Herz explains that the olfactory system is guided to detect change - a new odor, but once the novelty disappears, the receptors cease to respond, and we stop smelling it. This means that, even though the smell is still there, the olfactory cells adapt to the environment; this is called the effect of olfactory adaptation (Herz, 2001).

Emotional associative learning

Not only the pharmacological and psychological hypotheses have been object of debate but also whether hedonic responses to odors are innate or learned.

The innate view says that we are born with a predisposition to like or dislike various smells. In contrast, the learned view states that we are born with a predisposition to learn to like or dislike, and the smell is liked or not due to the past emotional experiences that have been associated with it (associative learning) (Herz, Beland, & Hqllersteiul, 2004).

The orbitofrontal cortex, the area of the brain responsible for processing olfaction, is also the area of the brain that assigns hedonic meaning and the amygdala is critical for emotional associative learning (Herz, Beland, & Hqllersteiul, 2004).

This process, associative learning, happens when an event or item comes to be linked to another through experience, and is critically involved in human cognition and behavior (Herz, 2005).

Odor hedonic perception and behavior results from a learned association between an odor and the emotional circumstance in which that odor was first found.

The process starts with the emotion being paired with an odor and becoming associated with it, giving it meaning, influencing hedonic perception, then an odor can cause the emotion associated with its prior contact and give an impact on mood and the related behaviors (Herz, 2005).

Olfactory hedonics are learned very soon, for example, children of mothers who consumed alcohol or cigarette smoke during pregnancy or lactation, presented preferences for these smells, compared to children who had never been exposed (Herz, 2005).

Even though that we think there are some general pleasant smells, such as rose, a person could dislike the smell if it were first found in an unpleasant situation, for example, a funeral. The evaluation of an odor change, positively and negatively, as a function of the emotional experience that had been linked with it (Herz, Schankler, & Beland, 2004).

Through associative learning with particular emotional experiences, odors operate as cues to these past emotional experiences and consequently exert the same type of cognitive and behavioral influences that the emotions themselves would produce. In addition to altering odor hedonic perception, emotions can become attached to odors such that these emotions are elicited when that odor is encountered again (Herz, Schankler, et al., 2004).

Odors can alter mood and relax (for example lavender) or stimulate us (for example mint), but this is due to the emotional associations we have previously made with them, and not to any innate influence (Herz, 2001).

Odors as the best cues to memory

According to Proust, the smell of a madeleine biscuit dipped in linden tea triggered intense joy and memory of the author's childhood. This experience, responding to scents associated with the events memorized with the smell, is referred as the "Proust phenomenon", and is the basis for the hypothesis that odor-evoked memories are more emotional than memories elicited by other sensory stimuli (Herz, Eliassen, Beland, & Souza, 2004). The

Proustian memories, or involuntary memories, are the classic example of olfactory memory, the mere exposure to a stimulus automatically triggers an intense memory of the past.

Behavioral experimentation on the Proust phenomenon has shown that the subjective experience of a memory triggered by the olfactory form of a specific cue is more emotional than when memory is elicited by other sensory variation of the same item (Herz, Eliassen, et al., 2004).

Rachel Herz studied through neuroimaging and the analysis indicated significantly greater activation in the amygdala and hippocampal regions during recall to the personally significant odor than any other cue, and behavioral responses confirmed that emotional responses were greatest to the personally meaningful odor. These findings provide convincing neurobiological evidence that the subjective experience of the emotional potency of odor-evoked memory is correlated with specific activation in the amygdala during recall and offers new insights into the effective organization of memory (Herz, Eliassen, et al., 2004).

Herz (1998) also conducted a study where odors were compared with verbal, visual, tactile and musical stimuli associated with emotionally evocative pictures. In the study, memories were scored for accuracy and emotionality. Accuracy was determined by subjects' correct recall of an associated picture and emotionality was written reports and changes in heart rate. Results showed that odor-evoked memories are distinguished from other memory experiences by their emotional potency but not by their accuracy, but together, the accuracy and the emotionality result in the statement that odors are the best cues to memory. Neuroanatomical evidence supports this statement, projections from the lateral olfactory tract synapse straight into the amygdala-hippocampal complex, which involved in the processing of emotional memory. In the other sensory systems, the information is first processed through the thalamus before being routed to the limbic area and the representative sensory cortical areas are also more anatomically distant from limbic structures than olfaction is (Herz, 1998).

Olfaction and emotion are linked, both are primarily processed in the right hemisphere (Herz, 1998).

As we can see, memories triggered by olfactory, visual and auditory stimuli have been subject to study by Herz. When a memory item was presented in olfactory form, it elicited a more emotional and evocative recollection than when the same item was in visual, verbal or auditory format. In particular, the oldest age group (50–70 years) had the most emotional and vivid memories elicited by fresh-cut-grass and the youngest age group (7–18 years) had the most vivid memories elicited by a campfire. Town and country were also found to influence how subjects responded to the three memory items, participants who were city dwellers had the

most vivid memories to popcorn and participants who lived in rural areas had most vivid memories to fresh-cut-grass. These differences are due to the different experiential history that these age groups and different residential communities have with those items (Herz, 2004).

Another research has shown that 90% of women and 80% of men, when triggered by smells, identified their intense memories which resulted in strong emotional reactions (Wala et al., 2019).

Store Elements

Consumers respond to the "total product" and a significant aspect of the total product is the place where it is bought or consumed (Kotler, 1973). Studies have shown that the characteristics of a store's environment can have an impact on consumers' purchasing behavior, elements such as music, lighting, layout, temperature, and scents (Doucé & Janssens, 2013).

Turley and Milliman (2000) divided atmospheric stimuli into five categories: external variables, general interior variables, layout, and design variables, point-of-purchase and decoration variables, and human variables. General interior variables include music, color, and scent (Doucé & Janssens, 2013). Music can influence human behaviors under certain conditions, especially under pleasant music. Research shows that slow music may increase the purchasing decisions by 35% and makes customers remain at the point of sale up to 18% longer (Wala et al., 2019).

When ambient scent and music are congruent with each other in terms of their arousing qualities, consumers rate the environment more positively, demonstrating higher levels of approach and impulse buying behaviors. That means that when low arousal scent combined with slow tempo music led to higher customer satisfaction (Mattila & Wirtz, 2001). Music can also be used to decrease perceived time in long queues of full restaurants – relaxing music versus arousing music – which can help mitigate the negative consequences such as consumer dissatisfaction (Kellaris & Mantel, 2002).

Mehrabian (1974) suggests that lighting is an important determinant of the environment because brighter rooms are more arousing than those in low light (Areni & Kim, 1994). Lighting has been object of study for several years; the main conclusions are that brighter lighting influences customers to examine and handle more merchandise, and higher levels of lighting will produce arousal and pleasure and therefore increase the approach behaviors (Summers & Hebert, 2001).

Layout, that includes interior design and décor, ambiance and spatial layout, have a significant effect on customers' emotions and the perceived value that contributes to approach

behaviors such as revisit intentions. In the restaurant environment, if consumers perceive the restaurant as comfortable and attractive it affects the overall evaluation of the dining experience (Liu & Jang, 2009).

Temperature also has something to say in customer behavior. Baker (1996) stated that higher temperatures result in the perception of time passing more slowly and also antisocial behaviors. The higher the temperature's distance beyond the range of comfort, the more negative the effect in the customers, therefore the longer the perception of the waiting time duration.

Additionally, Baker (1994) classified the ambient environment based on lighting and music and came to the conclusion that prestige-image ambient environment (soft low-level lighting and classical music) lead to more positive inferences of the merchandise and service quality rather than discount-image ambient environment (bright lighting and top 40 music – more popular) (Baker, Grewal, & Parasuraman, 1994).

Atmospherics

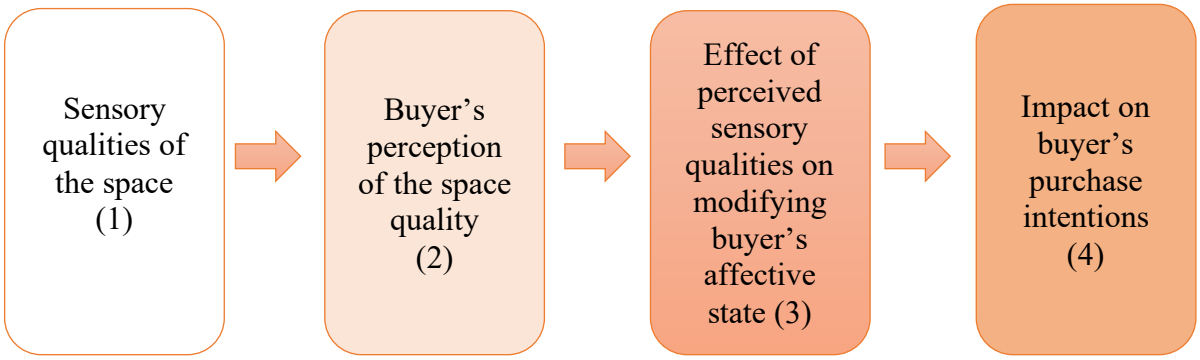
One of the most important aspects buyers are influenced by is the atmosphere of the place, and in some cases, it is more important than the product itself in the purchase process (Kotler, 1973).

The atmosphere is the air that surrounds space, describes the quality of the environment and is perceived by the senses. The atmosphere has 4 dimensions:

- The visual dimension that incorporates the color, brightness, size, and shape;
- The aural dimension that is the volume and pitch;
- The olfactory dimension as the scent and freshness;
- The tactile dimension that is the softness and temperature of the ambient (Kotler, 1973).

Kotler (1973) was the first to use the term atmospherics as the conscious effort to design environments to produce certain stimulus to increase buyer purchase and elaborated a causal chain between the atmosphere and the purchase probability:

Figure 5 -Atmosphere and purchase probability



Source: (Kotler, 1973)

This causal chain explains how the atmosphere can influence the purchase intention, basically, the sensorial qualities that the environment has, intrinsic to space or designed by the seller (1), will generate individual perceptions on the buyers (2). This perception is based on attention, distortion, and retention and can affect the consumer's information and affective state (3). With the modified information and state, the buyer will increase the probability of purchasing (4).

The atmosphere can affect purchase behavior in three different ways:

- Create attention – the seller can use colors and noises to create differentiation and drive attention;
- Create a message – the seller express various messages about the store to the potential or actual customers;
- Create effect – The colors, sound, and smell can arouse reactions that will contribute to the purchase intentions.

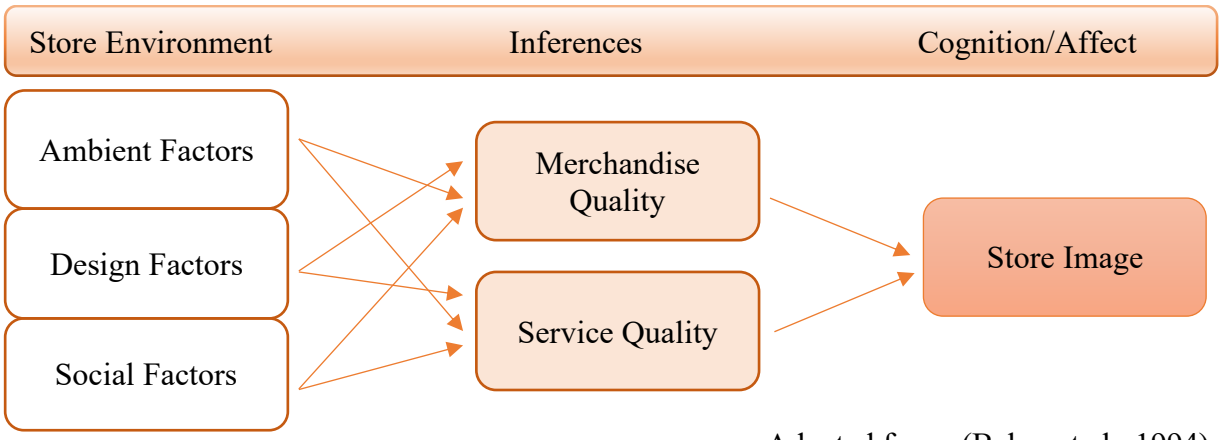
The impact of atmospherics on store

Baker (1994) divided the environmental cues into three factors: ambient factors, design factors, and social factors.

Ambient factors are related to the background conditions in the environment that exist below the level of the people's awareness, for example, temperature, humidity, scent, and cleanliness. Design factors are more visual store elements. It can be physical cues, such as color, architecture, and style, or functional factors that include layout, signature, and comfort. Social

factors include the influence of the human presence in the service such as the number, type, and behavior of sales personnel and other costumers.

Figure 6 - The influence of the Atmospherics on store image



Adapted from: (Baker et al., 1994)

This model focuses on the principle that store environment factors (ambient, design and social factors) and store image are mediated by inferences from the quality of products and services. The model explains that store environment increments the perception of merchandise quality and service quality and this two together will lead to a better store image. Baker and colleagues state that environmental factors, product quality, and service quality are antecedents of the store image, rather than components of store image (Baker et al., 1994).

Scent marketing

Although the term "Scent marketing" is recent, the idea of exploring scent as a way to attract customers has already been used for a long time but in the beginning was used to control and remove unpleasant odors rather than seduce customers (Miranda & Araújo, 2011).

Scent marketing as a tool was born in 2002 and defines a subarea of the neuromarketing that uses scents for a marketing purpose. Scent marketing is used to manipulate consumer behavior by unconsciously create emotions thus manipulating decisions that will lead to customer purchase (Emsenhuber, 2009). This term was considered one of the top ten trends to watch in 2007 (Bradford & Desrochers, 2009).

The goal of the companies that use scent marketing is not just to make the experience more pleasant. The big objective is to create a positive memory, influence the customer's future emotion of the brand and ultimately create an emotional bond to the customer and their wallet (Trivedi, 2006).

The smell is not always linked to the performance of the product itself but is fundamental to our relationship with that product. For example, the smell of a brand new car,

(that does not smell like plastic or metal, they are sprayed with and oil fragrance to let drivers feel more familiar with them); and the aroma of popcorns at the cinema become part of our decision-making process even though they are not connected directly to the product characteristics (Emsenhuber, 2009; Lindstrom, 2005).

Arboleda (2015) stated that the price the customer is willing to pay is driven by the quality of the product and the involvement with that product. The aroma of a product in a certain environment leads to a greater consumer involvement by stimulating the curiosity (Orth & Bourrain, 2005) and the attention mechanisms in regard on the consumer experience (Morrin & Ramneshwar, 2003), with this the consumer will have greater recollection and association with personal aspects, being more involved with the product or the environment (Krishna, Lwin, & Morrin, 2010).

Companies keep it a secret because they want the association between scent and brand to be subconscious and many refuse to confess because they fear the destruction of the effect (Trivedi, 2006).

Ambient scent

Product sense and ambient sense are very distinctive. Product sense is when the smell is in specific and singularized things or objects and the ambient scent is when the smell is on the environment and can affect perceptions of the store and pass to all its products (Krishna et al., 2010; Spangenberg, Crowley, & Henderson, 1996).

A stimulus can be distinctive if it differs from its surrounding context (primary distinctiveness) or because it is unexpected based on prior experiences (secondary distinctiveness). If we choose to scent a product it will differ from its environment and it is considered primary distinctiveness. The secondary distinctiveness occurs when we have an ambient scent in an environment normally unscented; this can attract the attention not only to the scent itself but all the products in the scented environment (Schmidt, 1991).

Marketers are using ambient smell to create attachments between consumers and spaces. The use of scent in retail and service spaces has been an alternative to differentiate brands rather than visual that is already saturated with advertising (Koeck & Warnaby, 2014). The ambient scent contributes to the building of a favorable perception of the mall environment, and indirectly of product quality. The consumer does not experience a mood shift, but simply transfers the pleasantness/unpleasantness of the scent to the object or brand (Chebat & Michon, 2003).

The smell makes spaces sense-able and understandable. Additionally, smells can transmit control and power by influencing how people act in certain spaces (Canniford, Riach, & Hill, 2018).

An aroma stimulates the long-term memory and this memory is stored as an emotional experience for the individual, in this way, when evaluating an aroma the customer will recall experiences in his memory to get involved and refer to a personal experience. The aroma is an element that gives information to the consumer about their involvement, previous experiences and their preference for the brand/ product (Arboleda & Alonso, 2015).

The study conducted by Morrin and Rarneshwar in 2003 proves that, when we have a pleasant ambient scent, customers spend more time examining the products and improves the customer's recall and recognition of brand names. Attention played a mediating role in enhancing brand memory because it results in longer attention spend at the time at stimulus viewing creating deeper memory traces that are more easily retrieved (Morrin & Rarneshwar, 2003) therefore ambient scent makes people stay longer in the store and they end up paying more attention to brand stimuli.

Smell and the impact on customer behavior

A person responds to the smell emotionally and physiologically mostly because of the perceived quality of the odor but there are several individual factors found to mitigate and control the responses provoked by an odor; these factors include culture, experience, gender, personality, and age.

Individual difference factors:

- Culture – Kuroda et al. (2005) found that the aroma of jasmine tea relaxed Japanese participants and orange and lavender oil produced significant increases in positive mood in stressed people. These results are explained because the perception of odor is a result of learned associations, and the culture provides a substantial basis upon which such learning occurs. Both orange and jasmine have cultural associations that have been learned by European and Asia populations.
- Experience- First experiences with odors are the main cause of unpredicted reactions. If the first experience with the rose aroma was at a funeral, the hedonic and emotional associative responses would be negative and accordingly the predictable positive effects on mood would not be seen (Herz, 2005).

- Sex Differences- According to Doty (1981) women are shown to be more sensitive than men to odors at certain times during the menstrual cycle (apud (Herz, 2009). Women are more emotionally reactive to odors (Chen & Dalton, 2005 cited in (Herz, 2009)), and more susceptible to emotional behaviors with odors (Bell, Miller, & Schwartz, 1992 cited in (Herz, 2009)).
- Personality - Neurotic, labile and anxious individuals may respond more intensely and selectively to emotionally significant odors than individuals without these personality traits (Herz, 2009).
- Age - The impact of the ambient scent is more significant in younger people because older people, from 40 to 70 but especially after 70 years of age, have cognitive processing deficits and have lower ability to recognize and recall odors (J.-C. Chebat, Morrin, & Chebat, 2009). Also, according to Lindstrom, young people's sense of smell is 200% stronger than the sense in adults over 50. Therefore, some of the most powerful olfactory impressions we have are formed during childhood. The author states that children influence 80 percent of parents' purchasing decisions so it enhances the importance of appeal to the sense of smell (Lindstrom, 2005).

One of the basic models to explain the olfactory cue effects is the stimulus–organism–response (S–O–R) paradigm (Donovan & Rossiter, 1994). The store's atmosphere (S) is the stimulus that affects consumers' evaluations (O) and leads to responses (R). If the responses are positive it means the desire to stay in a store and explore the products which suggest that pleasant scent (S) triggers a positive mood in the consumer (O), evoking purchasing behaviors (R).

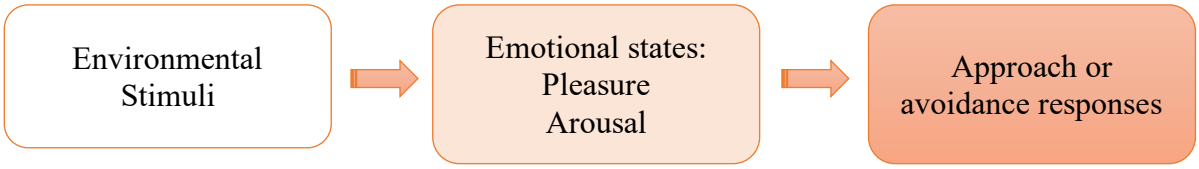
Mehrabian and Russell (1974) created a model on “environmental psychology”. This model assumes that the environment influences a person’s emotional state, which can be described along three dimensions, Pleasure-Displeasure, Arousal-Nonarousal and Dominance-Submissiveness (PAD model).

Pleasure indicates the degree to which a person is happy, relaxed and/or satisfied. Arousal is related to stimulation and excitement; if a person is hysterical, excited or stimulated she will score high on arousal. Dominance states if a person feels in control of the situation or free to act. This last dimension is not applicable in situations for affective responses and is usually not counted in studies because of lack of empirical support (Donovan & Rossiter, 1994).

The three emotional states determine the environment's effect on the responses that can be, either approach or avoidance type behaviors. The positive behaviors are approach behaviors,

for example, a desire to remain in a store and explore its offerings. Avoidance behaviors are the opposite responses, for example, the desire to leave the store.

Figure 7 - M-R Model



Source: (Donovan & Rossiter, 1994)

Using the M-R model, Gulas and Bloch (1995) identified the factors related to consumers and their approach or avoidance behaviors.

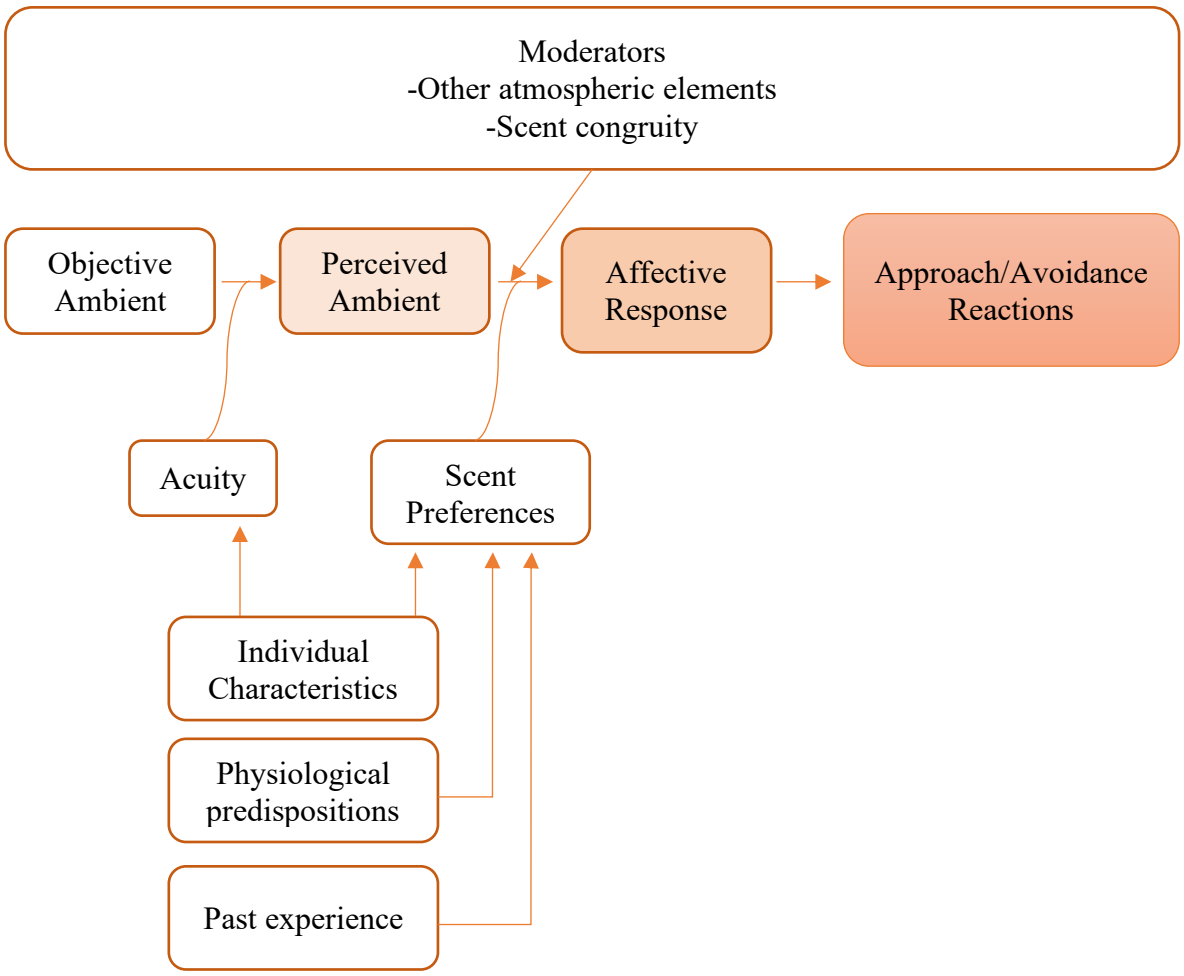
Gulas and Bloch (1995) explained that the perceived ambient scent is when the ambient scent is noticed by the consumer to drive effective responses that can result in approach or avoidance reactions. Scent preferences in combination with the perceived ambient scent influence affective responses.

Brands have the opportunity to use smell to trigger memories at two levels: an evocation of pleasant associations, for example baking bread; and recalling past experiences (Davies et al., 2003)(Gulas & Bloch, 1995).

Pleasantly scented environments lead to approach behaviors while the opposite, unpleasant environments, cause avoidance behaviors. These behaviors may happen without customers even being conscious of the presence of the smell (Bradford & Desrochers, 2009; Ward et al., 2007).

A smell can create instant connections between a brand and the consumers' other memories, therefore, can influence customers' emotional state and mood. When exposed to a pleasant fragrance, our mood improves 40%, especially when a fragrance is linked to a happy memory (Lindstrom, 2005), so the objective of scent marketing is to create a pleasant atmosphere for customers so that they stay in stores as long as possible enjoying the environment and consequently buy more products (Emsenhuber, 2009).

Figure 8 - Ambient Scent and consumers responses



Adapted from: (Gulas & Bloch, 1995)

Retailers that can manipulate effectively the environment generate, not only positive emotional responses but approach behaviors too (Davies et al., 2003) for that reason, scent affects higher loyalty to a specific brand and simulates buying decisions (Wala et al., 2019).

Scents can decrease the perception of time. A study conducted by Galeries Lafayette in Paris, showed that consumers, before scenting the room, claimed to spend around 45 minutes in-store and actually they spent around 40 minutes. After scent, consumers thought they had spent only 25 minutes in-store despite being there more than an hour (Bell, 2007).

The presence of a pleasant scent increases the time the customers spend exploring the products in the store, the intent to revisit the store, and to purchase certain products but decreases the perceived time spent in the store (Spangenberg et al., 1996), as Bell (2007) proved in physical stores.

Spangenberg (1996) also discovered that, when "feminine scents" like vanilla were used, sales of women's clothes doubled; as did men's clothes when scents like rose Maroc were diffused. He stated that men do not stick around when it smells feminine, and the opposite is also true.

Smelling a scent previously faced increases the simplicity to not only “smell” but “see” the object, that is, the scent may interact with other senses and activate the memory improving the effects of these sensory stimuli. Therefore, the scent tends to increase recall and can even help other senses to enhance recall as well (Lwin, Morrin, & Krishna, 2010).

Scent Marketing and the retail environment

The manipulation of the scent is an attempt at communicating a particular message with the aim of achieving specific and immediate behavioral responses – “stay, browse and purchase” but the retailers may also seek a delayed behavior – “enjoy the store, come back and purchase again” (Davies et al., 2003). A customer that came to the store only to visit without purchasing is not a "lost" customer, the visit may serve to know the products and may result in a later purchase and may also result in word-of-mouth, therefore, attract new customers (Söderlund, Berg, & Ringbo, 2014).

Davies and Ward (2003) proved that, in a retailer environment, customers mentioned that pleasant smells did affect their mood and often perceptions of the overall experience. Moreover, in many cases, they could remember to find an aroma in a store that triggered the purchase.

Main conclusions

As was mentioned extensively in the literature review, past research has shown that having a pleasant ambient scent can improve the store image, the perceived quality of the products sold there and increase the customer’s intention to revisit the store (Bell, 2007; Bone & Ellen, 1999; Spangenberg et al., 1996), increase customer's time spent in a store and give him the impression that he spent less time in the store than in reality (Bell, 2007; Spangenberg et al., 1996) and increase brand recognition and recall (Morrin & Rarneshwar, 2003).

According to the dominant contemporary relationship paradigm in marketing, when the customer visits a particular store, at a particular time, it should be considered by the store manager as an opportunity to invite him to revisit the store. Research about this paradigm have shown a list of controllable store factors that have a positive impact on the evaluations of the store, external variables are one of those, and this impact produce effects on customers’

intentions to revisit, that is, customers' evaluation of the store is positively linked with the intention to return to that specific store (Söderlund et al., 2014).

Francioni (2018) proved that the store atmosphere is positively related to the store loyalty, store satisfaction is positively related to store loyalty, and store atmosphere moderates the positive relationship between store satisfaction and store loyalty; he also states that customer satisfaction with a store is one of the major antecedents of store loyalty (Francioni, Savelli, & Cioppi, 2018).

The car industry is using scent marketing to differentiate not only brands but models. Ford is using the same brand scent since 2000 and the customers seem to notice that. Tests results prove that 27 percent of U.S customers notice that Ford has a unique smell and in Europe, the percentage rises to 34 percent (Lindstrom, 2005).

Several companies conducted several studies regarding the impact of scent in sales and in the time customers spend in the stores and proved all the benefits already mentioned, for example:

- Samsung in Manhattan uses the smell of melon to relax the customers. A study showed that customers underestimate the shopping time by 26% and visit three times more product categories when exposed to this pleasant fragrance (Lindstrom, 2008).
- A study conducted by MIB GROUP in 2014 proved that, after spraying a specific scent, the sales increased on average 35%. Also, 47% of the customers stated that the smell affected directly their mood and they were more willing to stay more time at the store (Victor Fairbanks, 2017).
- An experiment at Nike stores placed two identical running shoes in two different rooms, one of the rooms was infused with floral sense while the other was unscented. The results showed that not only the customers preferred the pair of Nike that were in the scented room – by 84 percent – but also valued the shoes to be $10,33 higher than the pair in the unscented room (Lindstrom, 2005).
- Harrah's, the casino in Las Vegas scented one room with pleasant odor while the other was not scented. Revenues from the machines in the scented room were 45 percent higher than the ones in the non-scented room and customers spent 40% more time in the scented room (Lindstrom, 2005).
- A cleaning products' company used the smell of hot water and a cleaning product smelling of lemon in one room and the sales were 36% against 11% in the unscented room (Lindstrom, 2008).

- Exxon On the Run stores added a coffee scent to their brewing systems and increased coffee sales by 55 percent (Hertz, 2008).
- Hershey's added a chocolate fragrance to their vending machines, tripling their sales (Hertz, 2008).
- Hyatt Place has been using scent since the start and regular internal surveys and public online comments revealed that the scent has enhanced the visitor experience and increased brand memorability (Minsky, Fahey, & Fabrigas, 2018).

Conceptual model

With all the studies as foundation, the hypothesis being study through the questionnaire are the following:

H1: The introduction of a pleasant scent will influence sales positively.

H2: The introduction of a pleasant scent will decrease the perception of time.

H3: Customer emotional state determines approach behaviors such as Intention to revisit, Sales, and Purchase intention.

H4: The introduction of a pleasant scent will influence positively the intention to revisit the store.

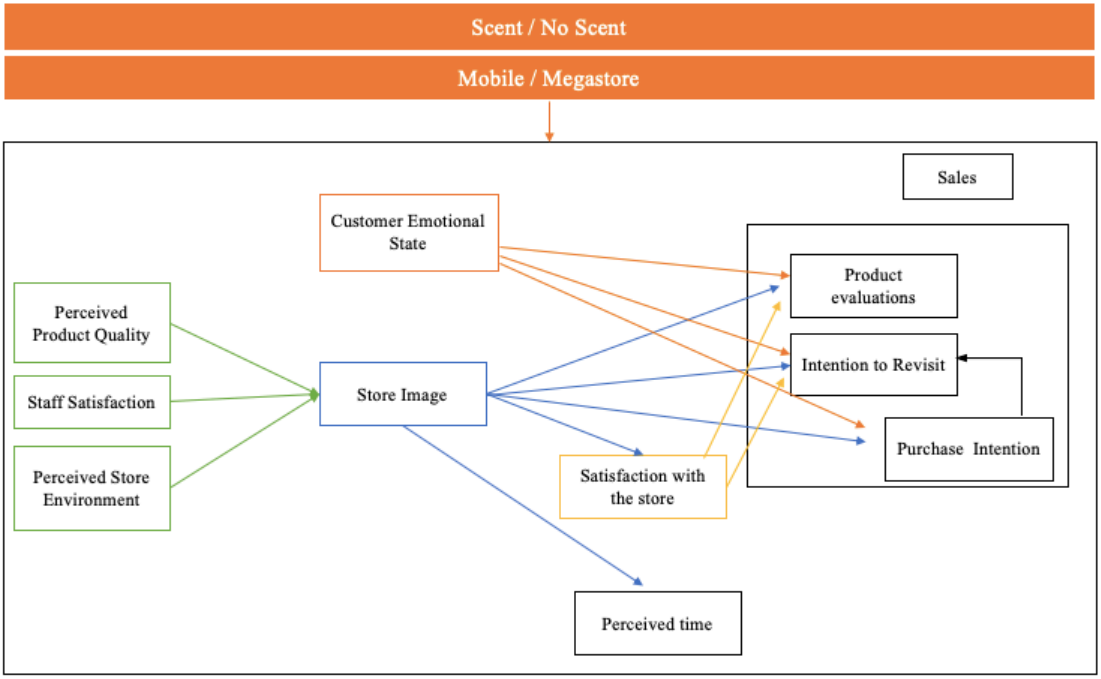
H5: The introduction of a pleasant scent will influence positively the overall store image.

H6: The introduction of a pleasant scent will influence positively the perceived environmental quality of the store.

H7: The introduction of a pleasant scent will influence positively the overall evaluation of the products.

H8: The introduction of a pleasant scent will influence positively the satisfaction with the staff.

Figure 9- Conceptual Model



Methodology

The research in this dissertation was conducted by an experimental study (odor manipulation). The analysis will give an understanding of the impact magnitude of scent marketing in sales at physical stores, a questionnaire to the Worten's customers, will give an understanding of the impact mainly on the satisfaction with the store, on the emotional state and on the perception of time, and a questionnaire to the Worten's Employees will measure the impact on their wellbeing and their opinion on the impact on customers.

This study was carried out in a timeline between June 5th and July 8th.

Data analysis

The experimentation was done in 2 different stores, Worten Mobile and Worten Megastore and the data was analyzed with and without the scent stimulus. As above mentioned, the objectives of this study were to analyze if the introduction of a pleasant scent influences the sales of the store and perception of time and other constructs such as, customer emotional state, intention to revisit, purchase intention and the perceived environmental quality of the store as well as the overall store image and evaluation of the products, and the satisfaction with the staff. With this objectives in mind, several analysis were conducted. This analyses were:

- Hypothesis testing to measure the difference between the means to study if there were differences in the variables in the scented days and in the unscented days;
- Correlation analysis to see how much the variables were correlated, for example the transactions and the sales gross value;
- Linear multiple regression to valid whether the scent influences or not the sales, purchase intention and revisit intention;
- Principal component analysis to reduce the volume of the information regarding the store image.

Hypothesis testing

The different tests are classified in two groups:

- Parametric: they are performed when the sample distribution is known, and in most cases when the characteristic under study is quantitative or treated as such;
- Non-Parametric: can be performed as an alternative to parametric tests for quantitative variables when the assumptions are not verified, or to analyze variables measured on a nominal or ordinal scale, that is, qualitative variables.

In the context of the present investigation, and taking into account the type of data, the T-test will be used to determine if the average of the differences is zero (independent samples), that is, to see if the evaluations in the scented days differ from the unscented days. This test has the assumption that samples come from populations with normal distribution.

The hypothesis in the Levene's Test for equality of variances are :The two samples come from populations with equal variance and the two samples come from populations with different variance. If sig > 0,05 we do not reject H0 and assume that the two samples come from populations with equal variance.

The t-test to the equality of means in two independent samples hypothesis are: the two samples have equal means, and the opposite. If sig > 0,05 we do not reject H0 and assume that the two samples have equal means.

Linear Regressions

Regression includes a set of statistical techniques used to model relationships between variables and to predict the value of one or more dependent variables, from a set of independent variables called predictors (Maroco, 2007).

To determine if there are any relationships between the variables under study we use the Pearson Correlation Coefficient that allows us to analyze the intensity but also the direction

of the correlation between the variables. This coefficient varies between -1 (strong negative linear relation), 0 (weak linear relation) and 1 (strong and positive linear relation).
Multiple linear regression has several assumptions:

- Linearity of the relationship between each X and Y;
- The mean of the residual component of the model is zero: $E(\varepsilon i) = 0$;
- The independent variables are not correlated with the residual terms:$Cov(\varepsilon i, X k) = 0$;
- There is no correlation among the residual terms: $Cov(\varepsilon i, \varepsilon j) = 0, i \neq j$;
- The variance of the random term is constant $Var(\varepsilon) = \sigma 2$;
- The residuals follow a Normal distribution: $\varepsilon \cap N(0, \sigma 2)$;
- There is no correlation among the explanatory variables.

This type of regression will be conducted to each variable in the conceptual model.

Principal component analysis

Principal component analysis has the objective of reducing the number of variables in order to use that information in the posterior analysis. In the present study, Principal Component Analysis (PCA) will be used to reduce the complexity of the information to estimate the linear regression models. The number of cases must be at least five times higher than the number of variables. We need to analyze the KMO and Bartlett's Test to see if the correlation matrix is different from the identity matrix. The hypothesis is: H0: The correlation matrix is the identity matrix (correlations between variables are zero) vs H1: the correlation matrix is not the identity matrix. To do a PCA we need to reject H0.

Table 1 - PCA classification

KMO Value	PCA classification
]**0,90; 1,0**]	Excellent
]**0,80;0,90**]	Good
]**0,70;0,80**]	Medium
]**0,60;0,70**]	Reasonable
]**0,50;0,60**]	Bad but acceptable
≤0,5	Unacceptable

Questionnaire Study

Through the questionnaire study it was intended to measure the impact of the scent on the following variables:

- Perceived time;
- General store image;
- Perceived environmental quality of the store;
- General evaluation of the products (perception of quality);
- Intention to return to the store;
- Perceived support of the staff.
- Customers' emotional state
- Purchase intention

A pre-study was conducted to analyze if all the questions on the questionnaire made sense for the study and if the customers understood all the questions. In the pre-study participated 23 customers and understood all the questions.

The questionnaire begins with a short introduction explaining the framework of its realization, the institution, and course that supports it, its duration and its anonymity. At the end of the introduction, the collaboration is appreciated.

The questionnaire, presented in Annex B and C, has six groups of questions.

Group 1

The first two questions aim to identify the gender and the age of the respondent. This information gives the knowledge about the demographic characteristics: gender as a qualitative variable measured on a nominal scale and age as a metric variable.

Group 2

Question 3 has the objective to inquire about the level of concordance of the respondent on eight store aspects. The aspects are: lighting, layout, temperature, smell, sound, overall store environment, product quality and support from the employees; all these variables have been subject to study because they have an impact on customer behavior. They are measured in a 5 points Likert scale (1 - "Very Bad" to 5 - "Very good").

Group 3

Question 4 asks the respondent to characterize how he feel about the store environment, the respondent's emotional state, and was formulated taking into account the PAD model (pleasure, excitement, dominance). The scale and variables were adapted to the scale of M&R

selecting the variables that best fit in the present study. To measure the dimension of pleasure the variables selected were: “relaxed” and “happy/ pleased” and to measure the excitation dimension the variables were chosen: “calm” and “interested/ stimulated”. The scale used for this question is a Likert scale with 5 points (1 – “0%” to 5 - "100%").

Group 4

Question 5 and 6 have the aim to analyze the satisfaction with the store and the intention to revisit the store. The scale used is a Likert scale with 5 points (for the question 5, the scale is 1–“Very dissatisfied” to 5-“Very satisfied” and for the question 6 the scale is 1-“Not probable” to 5-“Very probable”).

Group 5

Group 5 has three questions related to the evaluation and purchase intentions. The 7th question has the objective to understand how many products the respondent evaluated and the 8th and 9th are purchase intentions, in terms of the number of products and money spent.

The last question aims to know the perceived time of the respondent.

Employees collaboration

The desire to provide a sensory experience and become a sensory brand needs to be followed by an emphasis on recruiting and training employees because they are the ones who can break or build a brand in their interactions with the customers (Koksal, 2019).

Employees need to believe and share the values of the company to not deliver mixed values to the customers (Koksal, 2019). Following this reasoning, another analysis was conducted to verify if the impact was felt only by the customers or by the employees as well. This analysis is also very important because the well-being and satisfaction of the employees is a very important factor for any company that wants to succeed.

Despite the extensive literature about the importance of the employees, most of the research on sensory brand experience neglect their importance. Their opinions were analyzed through a questionnaire. The questions were based on the idea that satisfied employees result in success to the company. A good environment affects employee satisfaction at work and satisfied employees are more loyal to the company and perform well. A good environment will also bring higher productivity when it comes to workflow, safety, health, and job satisfaction and a store atmosphere that provides the employees with job satisfaction will result in an improvement in their quality of life (Kusumowidagdo, Sachari, & Widodo, 2012).

The first two questions of the employees’ questionnaire aim to understand the employees’ satisfaction with the store environment before and during the use of scent.

The third question asked the employee for their satisfaction regarding the fragrance used, “AQUA”. Question 4 regards the positive effect of the scent on the well-being of the employees and question five is formed by two sentences that aim to know whether the employees felt more joyful and more willing to influence the customers on the scented days.

If any customer commented on the aroma and if the comments were generally positive was also asked and followed by two sentences regarding the customers, whether they were more willing to buy and if they bought more on the scented days.

The last question was presented in a hypothesis. It was asked if they were part of the Worten’s Marketing team and needed to decide on the stimuli, whether they would implement or not the scent devices.

In the end, the type of store is asked, as well as the gender and age, for demographic purposes.

Experimental Study

The experimental part of this study was conducted in collaboration with AYSENSI. AYSENSI focus on counseling services in the design of environments, the creation of fragrances and communication solutions. Their support starts in advisory services and follows with the implementation and maintenance of the equipment. They act in the Iberian market by supporting the development of scent marketing. This company was founded on 2007 and the head office is located on Rua Tenente Espanca, 3, 2A, Lisbon.

Since the beginning Aysensi's support was total and made the devices available to aromatize two stores.

The first contact with Worten was directed to the department of PR, Internal Communication and Social Responsibility and was redirected to the department of Marketing Electronic Division to Ana Carina Garcia that followed all the process.

Worten is a Portuguese company of consumer electronics and entertainment founded on 12th March 1996. It belongs to Sonae and has its head office at Parque Suecia, in Carnaxide.

Worten is present in the main regions of Portugal, with three distinct store typologies: the superstores, with about 500 m2 of area, located in the commercial area of Continente hypermarkets, the megastores, with around 2,000 m2, located in the main shopping centers and the mobile stores that focus on the telecommunication sector, sells smartphones, accessories and so on.

In Portugal, Worten has more than 180 stores and in Spain, with the acquisition of the Boulanger chain of stores in 2008 and PC City stores in 2011, Worten presently has about 40 stores.

Stores selection

Two stores were selected, both at the center of Amadora at the Lisbon district and two typologies of the store were analyzed, Megastore and Mobile. The selection was based on two criteria: they needed to have the new Worten's layout and design; and have several power sources to implement the devices.

Calendar

The defined timeline was from 5th June to 8th July, approximately four weeks of experimentation. On the 5th June, we implemented the devices and programmed them to be switched on in a day, and switched off the consecutive day and so on. The devices were at the Worten Mobile from 5th June to 19th June and switched to Worten Megastore on 20th June where they stayed until the end, 8th July. In total, there were 17 days scented and 17 days unscented.

The sales information is related to the two stores and the timeline selected. Regarding the questionnaire, were conducted 389 questionnaires throughout the four weeks, 172 at Mobile and 217 at Megastore, 198 in scented days and 191 in unscented days.

The customers' affluence at Megastore was much more so the time spent at Mobile to interview customers was much higher. At Mobile, it was spent 7 days per week (5 workdays from 10 a.m. to 7 p.m. and at the weekends from 10 a.m. to 2 p.m.) and at Megastore, the schedule at the first week is detailed on the table:

Table 2 - Schedule

Schedule	**Thursday –20th June**	**Friday**	**Saturday**	**Sunday**	**Monday**	**Tuesday**	**Wednesday**
10a.m – 2 p.m							
2 p.m. – 6 p.m							

Fragrance Selection

AYSENSI provided four fragrances, "AQUA", "CV", "GF" and "MY", coded names for their aromas, that are usually applied in retail environments and the selection was conducted in two separated phases. At first, ISCTE students were asked to choose the one they liked the

most to be at a similar store as Worten. 35 opinions were collected, and the results are shown above:

Table 3 - Aroma - Students' opinions

AQUA	CV	GF	MY
16	12	4	3

The final decision was made by Worten at a physical store. At one particular point of the store, we aromatized with "AQUA" and in the opposite part of the store, we aromatized with "CV", the two most-liked fragrances. Three people from the Worten Marketing division chose "AQUA", going in line with the students' opinions.

Data Analysis

Sales

The objective of the sales' analysis is to see whether the introduction of a scent influences the sales positively at the two stores, that is, if the sales increase during the time the stimulus is on. To analyze the sales, we used two indicators: the number of transactions and the gross value of sales. Transactions are the number of in-store purchases, regardless of the number of items associated with each purchase. Results from the t-test for Equality of Means are presented in tables 4 and 5 for the two stores.

- Mobile Store Analysis:

Table 4 - T-test for Equality of Means (Mobile Store)

	Aroma	N	Mean	Std. Deviation	Std. Error Mean
Transactions	Yes	8	17.13	4.357	1.540
	No	8	19.25	3.955	1.398
Gross Value	Yes	8	1340.1013	696.58245	246.27909
	No	8	617.8175	459.38599	162.41748

		Levene's Test for Equality of Variances		T-test for Equality of Means		
		F	Sig.	T	df	Sig.*
Transactions	Equal variances assumed	.164	.691	-1.021	14	.324
	Equal variances not assumed			-1.021	13.871	.325
Gross Value	Equal variances assumed	.501	.491	2.448	14	.028
	Equal variances not assumed			2.448	12.120	.031

*Sig 2-Tailed

The hypothesis test results show that the transactions do not differ in the scented days from the unscented days (Sig>0,05 for equal variances assumed) but the gross value has differences, (Sig = 0,028 < 0,05), so we can conclude that the differences in the sales variable between before and during the introduction of the aroma are clearly significant by the means' analysis, i.e., in the scented days, the sales increased.

- Megastore Analysis:

Table 5 - T-test for Equality of Means (MegaStore)

	Aroma	N	Mean	Std. Deviation	Std. Error Mean
Transactions	Yes	9	442.22	60.819	20.273
	No	10	458.10	89.341	28.252
Gross Value	Yes	9	39400.7511	13117.46363	4372.48788
	No	10	40571.3000	9998.53482	3161.81433

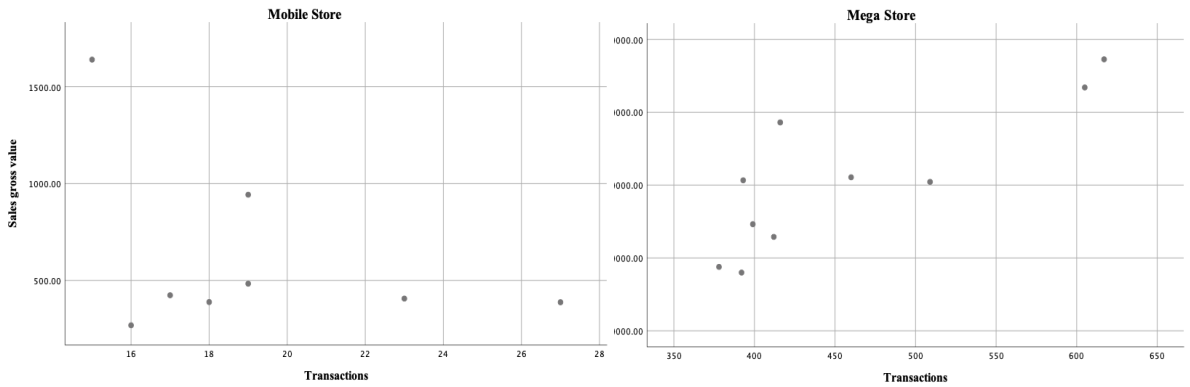
The hypothesis test results show that neither the transactions nor the gross value has differences (Sig>0,05 for equal variances assumed).

		Levene's Test for Equality of Variances		T-test for Equality of Means		
			Sig.	T	df	Sig.
Transactions	Equal variances assumed	1.131	.302	-.447	17	.660
	Equal variances not assumed			-.457	15.909	.654
Gross Value	Equal variances assumed	1.148	.299	-.220	17	.828
	Equal variances not assumed			-.217	14.926	.831

To know whether the transactions and the gross value is correlated we conducted an analysis based on the Pearson correlation. The Pearson correlation coefficient between two variables measures the degree of linear association between the two variables, it varies from -1 (perfect negative correlation between the two variables) and 1 (perfect positive correlation between the two variables).

Correlations without aroma:

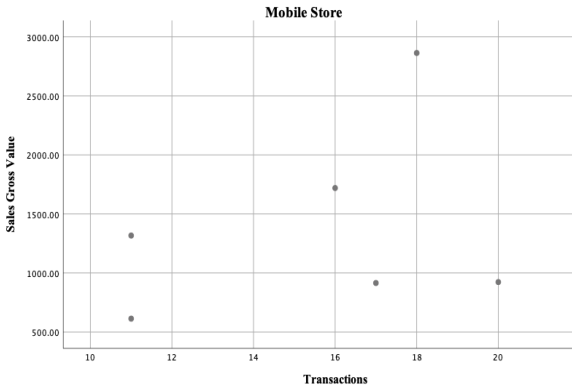
Figure 10 - Correlations between Transactions and Gross Value



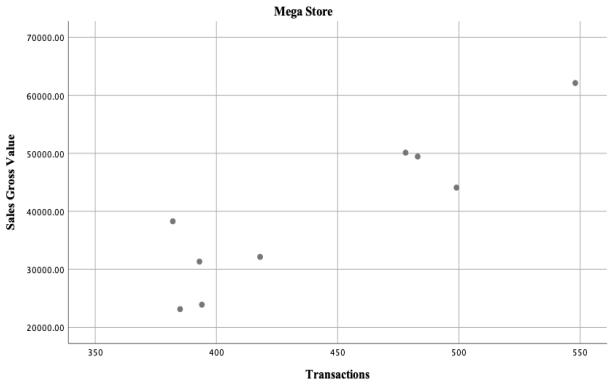
r= -0.402 p=0,324

r= 0,830 p=0,003

With aroma:



R= 0,134 p=0,852



R= 0,905 p=0,001

As we can see through the graphs, in the case of the Mobile Store, the number of transactions and the gross value are not correlated with each other with aroma or without aroma (p value > 0,05). At the Megastore is the opposite, the number of transactions is strongly correlated with the sales gross value (p value < 0,05) and the Pearson coefficient (R) is very high), with the aroma the correlations are even stronger, have almost a perfect positive correlation (R=1). This conclusion goes along with the solutions presented in the hypothesis tests, even though the aroma does not influence the number of transactions, it affects the sales gross value because they are not correlated.

These results indicate that the first hypothesis of this study is partially valid: the introduction of an aroma in the store environment will positively influence the sales of that store. This result only verifies in Mobile Store for gross value of sales.

Purchase intention and real purchase

The purchase intention in the questionnaire was measured by two indicators: Number of products bought and the value spent. To know whether the transactions are correlated with the number of products the customers said they would buy and whether the gross value is correlated to the value spent on the scented days we conducted an analysis based on the Pearson correlation.

Table 6 - Correlations (with Aroma)

Correlations		
		Purchase Intention - Value
Sales Gross Value	Pearson Correlation	.923
	Sig. (2-tailed)	.000

Correlations		
		Number of products intended to buy
Transactions	Pearson Correlation	.881
	Sig. (2-tailed)	.002

Table 7 - Correlations (without Aroma)

Correlations		
		Purchase Intention - Value
Sales Gross Value	Pearson Correlation	.905
	Sig. (2-tailed)	.000

Correlations		
		Number of products intended to buy
Transactions	Pearson Correlation	.853
	Sig. (2-tailed)	.002

The Pearson coefficient proves that, not only the transactions are positively correlated with the sales of products said in the questionnaire (in number), but also the sales gross value are positively correlated with the value intended to spend. All the values show a strong correlation between the two variables and in the scenario with aroma the correlations are even stronger.

Two regression analyses were conducted to understand if the aroma affects the sales gross value and the transactions.

Table 8 - Model at the Mobile regarding the Transactions

R	R Square	Adjusted R Square	Std. Error of the Estimate
.263	.069	.003	4.161

	ANOVA				
	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.063	1	18.063	1.043	.324
Residual	242.375	14	17.313		
Total	260.438	15			

The model has a $r^2$of 0.069 which means that the model explains only 7% of the number of transactions. The ANOVA results do not allow to reject the H0 (Sig > 0.05) so the model is not valid, we can conclude that the number of transactions at Mobile is not influenced by the aroma.

Table 9 - Model at the Megastore regarding the Transactions

R	R Square	Adjusted R Square	Std. Error of the Estimate
.108	.012	-.047	77.242

	ANOVA				
	Sum of Squares	df	Mean Square	F	Sig.
Regression	1194.176	1	1194.176	.200	.660
Residual	101428.456	17	5966.380		

Total	102622.632	18			

The r^2 is 0.012 which means that the model explains 1.2% of the Transactions.

The ANOVA results do not allow to reject the H0 (Sig > 0.05) so the model is not valid, we can conclude that the number of transactions at Mega is not influenced by the aroma.

Table 10 - Model at the Mobile regarding the Sales Gross Value

R	R Square	Adjusted R Square	Std. Error of the Estimate
.548	.300	.250	590.02652

The model has a r^2 of 0.3 which means that the model explains 30% of the Sales Gross Value.

	ANOVA				
	Sum of Squares	df	Mean Square	F	Sig.
Regression	2086775.262	1	2086775.262	5.994	.028
Residual	4873838.202	14	348131.300		
Total	6960613.464	15			

The ANOVA results allow to reject the H0 (Sig = 0.028 < 0.05) so the model is valid and we can conclude that the Sales Gross Value at Mobile is influenced by the aroma. This result is in accordance of that obtained in t-test presented above.

Table 11 - T-test on Sales Gross Value at Mobile

	Unstandardized Coefficients		**t**	**Sig.**
	B	**Std Error**		
Constant	617.817	208.606	2.962	.010
Aroma	722.284	295.013	2.448	.028

With the coefficients analysis we can see that the aroma has a positive correlation with Sales Gross Value and the model can be explain by:

Sales Gross Value = 617.817 + 722.384 Aroma, meaning that the sales gross mean value increases in 722.384 euros when the Mobile store is scented.

Table 12 - Model at Mega regarding the Sales Gross Value

R	R Square	Adjusted R Square	Std. Error of the Estimate
.053	.003	-.056	11571.46364

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	6490348.585	1	6490348.585	.048	.828
Residual	2276279104.275	17	133898770.840		
Total	2282769452.860	18			

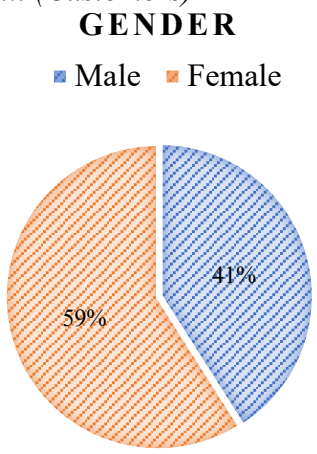
The r^2 of the Model is 0.003 which means that the model explains 0.3% of the Sales Gross Value. The ANOVA results do not allow to reject the H0 (Sig > 0.05) so the model is not valid, we can conclude that the Sales Gross Value at Megastore is not influenced by the aroma.

Questionnaire Analysis - Customers

Demographic context

Figure 11- Demographic context (Customers)

AGE	
Mean	47.70
Std. Error of Mean	.877
Median	48
Mode	18
Std. Deviation	17.292
Variance	299.013
Range	70
Minimum	18
Maximum	88



It can be seen from the table that the average age of the 389 respondents is 48 years old, the youngest respondent being 18 years old and the oldest being 88 years old. Regarding the gender, the majority of the respondents is female (59%).

The hypothesis testing were conducted and the results are presented in the annex E to I. The test results show that, in general, the customers evaluate more positively the "Layout", "Temperature", "Smell", "Overall store environment", "Product quality" and "Support from employees" in the days the aroma was at the store in comparison with the days the stimulus was not present.

Regarding the customers' emotional state, we can see that the customers are happier and more interested in the scented days. In the days of scent, the customers are more satisfied with the store, have more intention to revisit and have less perception of time.

The analysis of the two stores individually (annex G for the Mobile store and annex I for the Megastore) proves that the higher differences are shown at the Megastore (smell, overall store environment, product quality, intention to revisit and satisfaction with the store), because the Mobile store only had significant differences in the evaluation of the variable "smell".

Almost all the variables presented in the questionnaire were highly evaluated (higher means) in the days of scent, however these differences are not significant (sig > 0.05), meaning that scent did not have a significant change on those variables.

The correlation analysis was conducted to see whether the time and the value spent had some relation between each other:

Table 13 - Correlations between time, value spent and products brought (Mobile)

Correlations – Mobile Store			
	How much did you spend?	How long have you been in store?	How many products did you buy?
How much did you spend?	1	.499**	.337**
How long have you been in store?	.499**	1	.436**

**Correlation is significant at the 0.01 level.

Table 14 -Correlations between time, value spent and products brought (Mega)

Correlation – Mega Store			
	How much did you spend?	How long have you been in store?	How many products did you buy?
How much did you spend?	1	.302**	.289**
How long have you been in store?	.302**	1	.234**

**Correlation is significant at the 0.01 level.

As we can see through the correlation matrix, all the variables are correlated. We can conclude that, the longer the customers perceive to be in store, the more products they buy and the more money they spend. The correlation between the variables is stronger in the mobile store in comparison with the megastore. This conclusion is in line with the discoveries of Emsenhuber in 2009.

Principal Component Analysis

A principal component analysis was conducted with five variables (lighting, layout, temperature, smell and sound) but the sound was removed from the analysis because had a low communality (the communality is the proportion of the variance explained by the principal component that integrates the solution in the analysis and need to be higher than 0,4) as we can see in the annex L.

Removing the sound and doing the process again we have another correlation matrix. Correlations need to be higher than 0.3 and, as we can see through the table, almost all variables have correlations with each other.

Table 15 - Correlation Matrix

Correlation Matrix					
		Lighting	Layout	Temperature	Smell
Correlation	Lighting	1.000	.455	.379	.256
	Layout	.455	1.000	.387	.318
	Temperature	.379	.387	1.000	.420
	Smell	.256	.318	.420	1.000

Analyzing the significance of the Bartlett's test we can conclude that the variables are correlated with one another (Sig=0,000 < 0,005) and KMO is 0,716 which means it is Medium, so we can use PCA with these variables.

Table 16 - KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.716
Bartlett's Test of Sphericity	Approx. Chi-Square	265.938
	df	6
	Sig.	.000

Table 17 – Communalities Value

Communalities		
	Initial	Extraction
Lighting	1.000	.520
Layout	1.000	.565
Temperature	1.000	.579
Smell	1.000	.448

The communalities need to be higher than 0,4 and they are so we can continue.

Table 18 - Communalities Matrix

Component Matrix	
Lighting	.721
Layout	.752
Temperature	.761
Smell	.669

The Component Matrix presents the loadings (contributions) of the original variables in the principal component. The closer they are to 1 or -1, the greater the association between the variable and the component, and the more representative is the variable in that component. Regarding to the loading values, the component 1 can be named as Store Image.

The first study of dependency is divided in two, one linear regression for the PC of the Store Image and the other with Sound. The first analysis aims to understand if the Store Image is influenced by the aroma and the variables "Perceived Product Quality", "Support from employees" and "Perceived Store Environment".

Table 19 - Linear Regression I

R	R Square	Adjusted R Square	Std. Error of the Estimate
.684	.467	.462	.73371470

	ANOVA				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	180.817	4	45.204	83.970	.000
Residual	206.183	383	.538		
Total	387.000	387			

The r^2 is 0.467 which means that the model explains about 47% of the Store Image.

	Unstandardized Coefficients		t	Sig.	Tolerance	VIF
	B	Std Error				
Constant	-.177	.054	-3.283	.001		
Overall store environment	.447	.048	9.285	.000	.601	1.665
Product quality	.144	.046	3.141	.002	.658	1.520
Support from the employees	.135	.046	2.960	.003	.669	1.496
Aroma	.351	.076	4.591	.000	.950	1.053

The ANOVA results (Sig <0,05) proves that the model is valid.

The coefficients show that Store image is influenced by the four the variables and can be explained by:

Store Image = -0,177 + 0,447 Overall Store Environment + 0,144 Product Quality + 0,135 Support from Employees + 0,351Aroma

The aroma is positive which means that, in a scented store, the store image will be more positively evaluated by 0,351.

In the other hand, the second analysis aims to understand if the Sound of the store is influenced by the aroma and the variables "Perceived Product Quality", "Support from employees" and "Perceived Store Environment".

Table 20 - Linear Regression II

R	R Square	Adjusted R Square	Std. Error of the Estimate
.224	.050	.040	.97966091

	ANOVA				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	19.462	4	4.865	5.070	.001
Residual	368.538	384	.960		
Total	388.000	388			

	Unstandardized Coefficients		**t**	**Sig.**	**Tolerance**	**VIF**
	B	**Std Error**				
Constant	-.072	.072	-1.006	.315		
Overall store environment	.208	.064	3.238	.001	.601	1.663
Product quality	.045	.061	.733	.464	.660	1.515
Support from the employees	-.076	.061	-1.253	.211	.668	1.497
Aroma	.142	.102	1.393	.165	.952	1.051

Although the r^2 is very low, the ANOVA results (Sig < 0.05) proves that the model is valid. Only the Overall Store Environment influence the Sound, so the model can be explain by:

Sound = 0,208 Overall Store Environment

The second group of multiple regression analyses aims to analyze the influence on store satisfaction of both sound and Store Image as well as aroma.

Table 21 - Linear Regression III

R	R Square	Adjusted R Square	Std. Error of the Estimate
.547	.300	.294	.83978567

	ANOVA				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	115.787	3	38.596	54.727	.000
Residual	270.812	384	.705		
Total	386.599	387			

The $r^2$is 0,3 which means that the model explains 30% of the Store Satisfaction. The ANOVA results (Sig <0,05) proves that the model is valid. With the coefficients analysis, we can see that the Store Image influence the Store Satisfaction. The model can be explained by:

Store Satisfaction = 0,518 Store Image

	Unstandardized Coefficients		**t**	**Sig.**	**Tolerance**	**VIF**
	B	**Std Error**				
Constant	-.089	.063	-1.427	.154		
Aroma	.169	.090	1.885	.060	.906	1.103
Store Image	.518	.046	11.312	.000	.869	1.151
Sound	-.012	.044	-.282	.778	.948	1.054

If the significance level was 10% we can considerate the aroma to influence the Store Satisfaction.

The following multiple regression analysis aims to understand the influence of the Store Image and the Sound in the Perceived time.

Table 22 - Linear Regression IV

R	R Square	Adjusted R Square	Std. Error of the Estimate
.132[a]	.017	.010	.99477661

	ANOVA				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	6.701	3	2.234	2.257	.081
Residual	379.999	384	.990		
Total	386.700	387			

The r^2 value and the ANOVA results allow us to understand that the model is not valid. This means that the Perceived Time is not influenced by the sound neither by the Store Image.

	Unstandardized Coefficients		**t**	**Sig.**	**Tolerance**	**VIF**
	B	**Std Error**				
Constant	.118	.074	1.592	.112		
Aroma	-.237	.106	-2.231	.026	.906	1.103
Store Image	-.031	.054	-.571	.568	.869	1.151
Sound	-.002	.052	-.037	.971	.948	1.054

However, results of coefficients' t-tests allow us to conclude that the aroma will decrease the perceived time of customers by, on average, 0.237 minutes.

The multiple regression 4 analyzes the relation between the number of products evaluated and all the four Emotional states, Store image, Satisfaction with the store and aroma.

Table 23 - Linear Regression V

R	R Square	Adjusted R Square	Std. Error of the Estimate
.170	.029	.009	.99698046

ANOVA					
		Df	Mean Square	F	Sig.
Regression	11.263	8	1.408	1.416	.188
Residual	376.715	379	.994		
Total	387.977	387			

The r^2 and the ANOVA results lead to conclude that the model is not valid. Therefore, the product evaluations are not influenced by the aroma, the customer emotional state, the store image and the customer satisfaction with the store.

The fifth regression model intends to evaluate the influence of the number of products evaluated, the four Emotional states, Store image, Sound and aroma on the Purchase intention (by the value spent).

Table 24 - Linear Regression VI

R	R Square	Adjusted R Square	Std. Error of the Estimate
.190[a]	.036	.016	.99290542

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	14.035	8	1.754	1.780	.080
Residual	373.641	379	.986		
Total	387.677	387			

The r^2 and the ANOVA results lead to conclude that the model is not valid. This means that Purchase intention (by the value spent) is not influenced by the mentioned variables, specially is not influenced by the aroma.

However, if we look at the coefficients' t-tests, we can see that the number of products evaluated influences the Purchase intention.

	Unstandardized Coefficients		t	Sig.	Tolerance	VIF
	B	Std Error				
Constant	.003	.074	.044	.965		
Aroma	-.009	.107	-.087	.931	.896	1.116
Relaxed	.055	.072	.767	.444	.494	2.026
Happy/Pleased	-.014	.078	-.181	.856	.415	2.411
Calm	-.102	.076	-1.344	.180	.445	2.249
Interested/Stimulated	.042	.073	.581	.561	.481	2.081
Store Image	-.076	.060	-1.272	.204	.712	1.404
Sound	-.039	.052	-.742	.458	.942	1.062
Products Evaluated	.160	.051	3.134	.002	.975	1.025

The last regression analysis made was whether the four Emotional States, the store image, sound, aroma and the Purchase intention influence the revisit intention.

Table 25 - Linear Regression VII

R	R Square	Adjusted R Square	Std. Error of the Estimate
.558	.312	.295	.83985228

	ANOVA				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	120.629	9	13.403	19.002	.000
Residual	266.623	378	.705		
Total	387.252	387			

The r^2 is 0,312 which means that the model explains 31% of the Intention to revisit. The ANOVA results (Sig <0,05) proves that the model is valid. The model can be explained by:

Intention to revisit = 0,447 Store Satisfaction + 0,151 Interested,

Meaning that the customer's interest and its satisfaction with the store influences the store revisit. Aroma does not influence the intention to revisit the store.

	Unstandardized Coefficients		t	Sig.	Tolerance	VIF
	B	Std Error				
Constant	-.049	.063	-.777	.438		
Value Spent	-.055	.043	-1.292	.197	.989	1.011
Store Satisfaction	.447	.055	8.178	.000	.611	1.636
Store Image	.019	.055	.349	.727	.613	1.632
Sound	-.037	.044	-.830	.407	.940	1.064
Relaxed	.109	.061	1.783	.075	.491	2.036
Happy/Pleased	-.010	.067	-.143	.886	.403	2.482
Calm	-.085	.064	-1.327	.185	.442	2.261
Interested/Stimulated	.151	.062	2.441	.015	.474	2.110
Aroma	.095	.090	1.046	.296	.888	1.126

Analysis to the Staff data

Demographic context

Gender	Mobile		Mega		Total	
	N	%	N	%	N	%
Female	1	25%	15	60%	16	55,2%
Male	3	75%	10	40%	13	44,8%
Total	4	100%	25	100%	29	100%

In the Mobile store, the majority of the employees are male (3 in 4) but in the Megastore the gender of employees is more balanced and women are more (15 in 25). In total, the sample is very balanced (16 females and 13 males).

The Mobile Store has a younger staff as the mean age is 25 years old (SD=4.8) versus 30 years old (SD=9.7) for the Megastore.

Age	Mobile	Mega
Mean	25,5	30,24
Std. Deviation	4,796	9,666
Maximum	31	54
Minimum	21	19

Table 26 – Employes' analysis I

	Mobile		Mega	
	Mean	Std. Deviation	Mean	Std. Deviation
How do you rate your satisfaction with the store before the scent?	3.75	.500	3.64	.995
How do you rate your satisfaction with the store during use of the scent?	3.75	.500	2.80	1.414
How do you rate your satisfaction with the aroma that was used?	3.75	1.500	2.72	1.429
How much the aroma impacts positively you well-being at work?	3.50	.577	2.16	1.344
On the days of scent I was more cheerful	3.75	.957	2.24	1.393
On the days of scent I was more willing to influence the customers	3.50	.577	2.12	1.301

As we can see through the employees' collaboration, the satisfaction with the store did not change at the Mobile Store and at the Megastore the satisfaction decreased, probably due to the fact that they did not like the scent used (the mean is 2.72 for the question "How do you rate your satisfaction with the aroma that was used?").

The analysis shows a big discrepancy between the opinions of the two stores. At the Mobile Store, employees state that the aroma impacts positively the well-being and that they were more cheerful and willing to influence the customers (mean values higher than 3) but the opinions are totally different at the Megastore.

Table 27 - Employees' analysis II

		Mobile		Mega		Total	
		N	%	N	%	N	%
The customers commented the scent	Yes	4	100%	15	60%	16	55,2%
	No	0	0%	10	40%	10	34,5%
In general the observations were positive	Yes	4	100%	8	53,3%	12	63,2%
	No	0	0%	7	46,7%	7	36,8%
If it was your decision, would you implement the scent devices?	Yes	4	100%	10	40%	14	48,,3%
	No	0	0%	15	60%	15	51,7%

Regarding the customers actions, at the Mobile store, the employees say that the customers did comment the scent and all the opinions were generally positive but, at the Megastore the employees say that 60% of the customers commented the scent and 53,3% were positive.

The last question was if they would implement the scent devices. Again the opinions differ between the stores. At the Mobile Store, all the employees would implement but at the Megastore only 40% would implement.

Several reasons not to implement were said, some of them were the bad implementation method, the type of aroma and allergies (see more in the annex K).

Conclusions and limitations

The main objective of this study was to see if the introduction of a scent, considered pleasant, influences the customers' decision-making process and in which matters.

In the first part of this dissertation, a theoretical explanation about the theme was conducted and it was possible to obtain a global vision of the previous studies and to understand the underlying concepts as consumer behavior, sensory marketing, scent marketing, atmosphere, the five senses, and others. With this first part in mind, a conceptual model was created and hypotheses formulated to help analyzing the main questions of this dissertation.

The development of this method relied on eight hypotheses that were analyzed based on the questionnaire and the sales quantitative data.

According to all the analysis previously made, the conclusions obtained are:

Table 28 - Conclusions Results

Hypothesis 1	The introduction of a pleasant scent will influence sales positively.	Verified in Mobile Store for Gross value of sales
Hypothesis 2	The introduction of a pleasant scent will decrease the perception of time.	Verified
Hypothesis 3	Customer emotional state determines approach behaviors such as Intention to revisit, Sales, and Purchase intention.	Partially verified (verified only for customer's interest that influence the intention to revisit)
Hypothesis 4	The introduction of a pleasant scent will influence positively the intention to revisit the store.	Verified
Hypothesis 5	The introduction of a pleasant scent will influence positively the overall store image	Verified
Hypothesis 6	The introduction of a pleasant scent will influence positively the perceived environmental quality of the store	Verified
Hypothesis 7	The introduction of a pleasant scent will influence positively the overall evaluation of the products	Verified
Hypothesis 8	The introduction of a pleasant scent will influence positively the satisfaction with the staff	Verified

We could conclude a lot more information having the regression analysis in mind. We saw that: the Store Image is influenced by the aroma and the variables "Perceived Product Quality", "Support from employees" and "Perceived Store Environment"; the Overall Store Environment influence the variable "Sound"; the Store Image influence the Store Satisfaction; the Perceived Time is not influenced by the sound neither by the Store Image; the product evaluations are not influenced by the aroma, customer emotional state, store image nor the customer satisfaction with the store; the purchase intention (by the value spent) is not influenced by the number of products evaluated, the four Emotional states, Store image, Sound and aroma and to conclude, the customer's interest and its satisfaction with the store influences the store revisit.

With the support of the hypothesis tests and the regressions analysis, we can conclude that only hypothesis 3, the impact of the customer emotional state on the approach behavior was not verified.

The introduction of a pleasant scent will increase sales, and this conclusion in aligned with previous studies as Turley e Milliman (2000), Spangenberg (1996), Victor Fairbanks (2017), Lindstrom (2005 and 2008) and Hertz (2008). This conclusion is true in the Mobile Store for sales gross value because the scent was better distributed in the store than in the megastore, meaning that, because of the fact that the Mobile store is much smaller, the scent was more balanced and felt throughout the all the store, that did not happen in the Megastore where we had places that the smell was very strong, and places where it was not noticed.

The introduction of a pleasant scent will decrease the perception of time because the customers are more relaxed and calm as Bell (2007), Lindstrom (2008) and Spangenberg (1996) had already verified.

It was also possible to conclude that the introduction of scent increase the intention to revisit the store and influence positively the overall store image, the perceived environmental quality of the store, the overall evaluation of the products and the satisfaction with the staff (Bell, 2007; Bone & Ellen, 1999; Lindstrom, 2008; Morrin & Rarneshwar, 2003; Spangenberg et al., 1996).

Another conclusion can be made through the correlation analysis, the longer the customers perceive to be in store, the more products they tend to buy and the more money they tend to spend (Emsenhuber, 2009).

The Store image was found to be influenced by the aroma and that image influences the satisfaction with the store.

The staff analysis allowed to see their perspective on the influence of the scent on the customers and on their well-being. There was a big discrepancy between the opinions of the two stores but in conclusion the implementation method needs to be different to see better results on their well-being.

This thesis proves the benefits of using scent on the brand strategy, it proves that the sales, the satisfaction with the store and the revisit intention increased, which are one of the best ways to achieve success in a company, having the customers happy and with the will to come back.

Limitations

The biggest limitation that can be pointed out is the implementation method. The aroma diffuser needs a power source, and because the stores only had power sources near employees or next to the cash register, the aroma was inconsistently distributed throughout the store.

The localization also affected significantly more the employees' satisfaction with the stimulus because the scent was much more intense near them.

Other limitations are the small number of stores (only two) and their location (the two stores in Lisbon) where this study was carried out. Therefore, it is not possible to generalize the results to the population.

Marketing Implications

It was proved by this study that the introduction of an aroma, perceived as pleasant, in a store environment influences positively the sales, the overall store image, the perceived environmental quality of the store, the overall evaluation of the products and the satisfaction with the staff. In the days of scent, the customers had more intention to revisit and have less perception of time.

The best marketing is all about customer experience, and sensory marketing is an important marketing strategy to create a complete experience, aimed at transforming and enhancing the consumer involvement into an engaging activity that encourages consumers to repeat and spread the experience.

Scent marketing leads to more meaningful consumer/brand connections because our sense of smell is linked to our limbic system, it can affect how we behave and what we remember about a brand experience.

The analysis of the employees give another view to the topic, it is important to see the employees' side and view of the stimulus because they are the face of the brand and need to be aligned with the values of the company, the analysis proves that the implementation needs to be different so that the employees feel better and at the end be more productive.

Future investigations

In future investigations, the researcher may also consider studying the impact of introducing aroma per area, because Worten stores have several different areas of interest; Therefore, researchers could see the areas that scent has more impact.

Also the localization of the stores, Worten has several stores throughout Portugal, in future investigations, it can be studied the differences between the North, Center, Alentejo, Algarve and Madeira and Azores.

Having in mind the objectives of Sensory Marketing, it is also possible to consider other variables such as brand loyalty and perception and achievement of a brand identity.

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Annexes

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Annex A: The olfactory system

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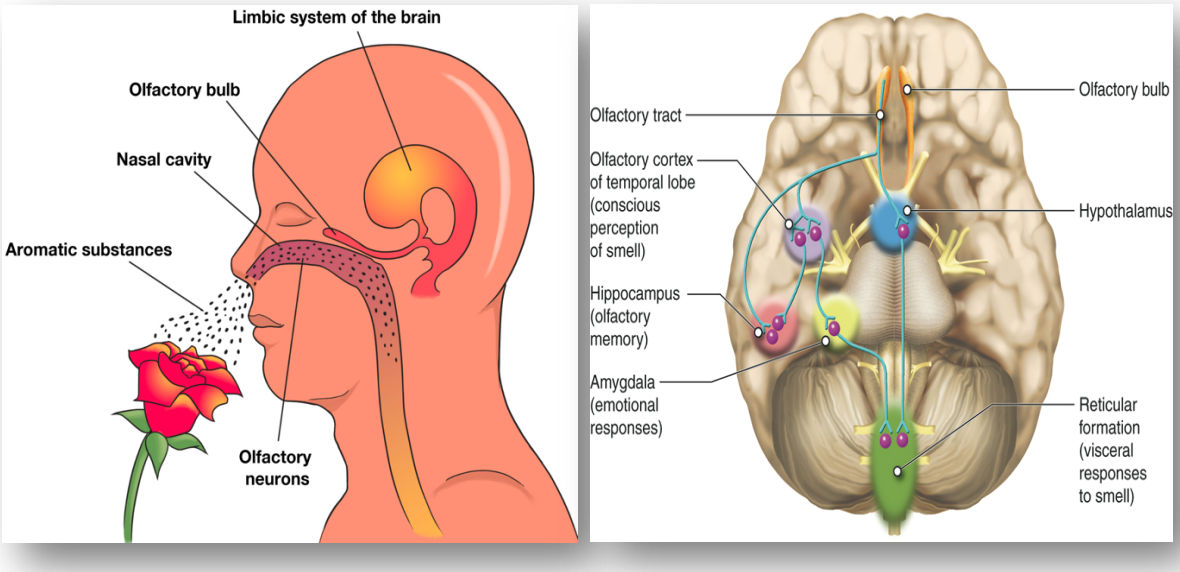

Source : https://edu.glogster.com/glog/the-olfactory-system/26qosbgfw3o (1)
https://courses.lumenlearning.com/austincc-ap1/chapter/special-senses-smell-olfaction/ (2)

Annex B: Questionnaire 1

Este questionário enquadra-se numa investigação no âmbito de uma tese de mestrado em Gestão no ISCTE. O seu preenchimento não demora mais que 1 minuto. Agradeço a sua colaboração!

Sexo: (F) (M) Idade: ☐

Para cada aspeto da loja indique o seu grau de concordância:

	Muito Mau 1	Mau 2	Razoavél 3	Bom 4	Muito bom 5
Iluminação	○	○	○	○	○
Organização do espaço	○	○	○	○	○
Temperatura	○	○	○	○	○
Cheiro	○	○	○	○	○
Som	○	○	○	○	○
Ambiente geral da loja	○	○	○	○	○
Qualidade dos produtos	○	○	○	○	○
Apoio por parte dos colaboradores	○	○	○	○	○
Calmo	○	○	○	○	○
Interessado/Estimulado	○	○	○	○	○

Como avalia a sua satisfação com o ambiente da loja?

Nada satisfeito	Pouco satisfeito	Neutro	Satisfeito	Muito satisfeito

Como avalia a sua intenção de regressar à loja?

Nada provável	Pouco provável	Neutro	Provável	Muito provável

Quantos produtos tenciona avaliar?

1	2-3	4-5	Mais de 5

Tenciona comprar algum produto? (S) (N) Se sim, indique o produto de maior valor._____

Quanto tempo acha que esteve em loja? _____

Annex C: Questionnaire 2

Este questionário enquadra-se numa investigação no âmbito de uma tese de mestrado em Gestão no ISCTE. O seu preenchimento não demora mais que 1 minuto. Agradeço a sua colaboração!

Sexo: (F) (M) Idade: ☐

Para cada aspeto da loja indique o seu grau de concordância:

	Muito Mau 1	Mau 2	Razoavél 3	Bom 4	Muito bom 5
Iluminação	○	○	○	○	○
Organização do espaço	○	○	○	○	○
Temperatura	○	○	○	○	○
Cheiro	○	○	○	○	○
Som	○	○	○	○	○
Ambiente geral da loja	○	○	○	○	○
Qualidade dos produtos	○	○	○	○	○
Apoio por parte dos colaboradores	○	○	○	○	○

Como avalia a sua satisfação com o ambiente da loja?

Nada satisfeito	Pouco satisfeito	Neutro	Satisfeito	Muito satisfeito

Como avalia a sua intenção de regressar à loja?

Nada provável	Pouco provável	Neutro	Provável	Muito provável

Avalie, numa escala de 1 a 5, como se sente:

	1 (0%)	2 (25%)	3 (50%)	4 (75%)	5 (100%)
Descontraído	○	○	○	○	○
Contente / Alegre	○	○	○	○	○
Calmo	○	○	○	○	○
Interessado/Estimulado	○	○	○	○	○

Quantos produtos avaliou? | 1 | 2-3 | 4-5 | Mais de 5 |

Quantos produtos comprou?_____ Quanto gastou?_____

Quanto tempo acha que esteve em loja? _____

Annex D: Questionnaire to the Staff

Considerando o ambiente de loja **antes da implementação dos aparelhos aromáticos**, indique o seu grau de satisfação com o mesmo:

Nada satisfeito	Pouco satisfeito	Neutro	Satisfeito	Muito satisfeito

Considerando o ambiente de loja **durante a utilização dos aparelhos aromáticos**, indique o seu grau de satisfação com o mesmo:

Nada satisfeito	Pouco satisfeito	Neutro	Satisfeito	Muito satisfeito

Avalie o grau de satisfação relativamente ao aroma utilizado:

Nada satisfeito	Pouco satisfeito	Neutro	Satisfeito	Muito satisfeito

Avalie de 1 a 5 quanto é que o aroma utilizado afeta positivamente o seu bem estar no trabalho? (1- Não afeta nada, 5- Afeta muito)

1 (0%) ○ 2 (25%) ○ 3 (50%) ○ 4 (75%) ○ 5 (100%) ○

Diga como avalia as seguintes afirmações utilizando uma escala de 1 a 5, sendo 1 discordo totalmente e 5 concordo totalmente:

	1	2	3	4	5
Nos dias de aroma estive mais bem disposto (a)	○	○	○	○	○
Nos dias de aroma estive mais predisposto(a) a influenciar os clientes na compra.	○	○	○	○	○

Algum cliente comentou o aroma? Sim Não

Se sim, na generalidade foram positivos? Sim Não

Qual a sua perceção relativamente aos clientes nos dias de aroma numa escala de 1 a 5, sendo 1 discordo totalmente e 5 concordo totalmente:

	1	2	3	4	5
Nos dias de aroma os clientes estavam mais dispostos a comprar.	○	○	○	○	○
Nos dias de aroma os clientes compraram mais.	○	○	○	○	○

Pensando que fazia parte da equipa de marketing da Worten e tinha que decidir pela implementação, ou não, de aparelhos aromáticos nas lojas, que decisão tomaria?

Não implementava Implementava

Se não implementava, porquê?_____

Empregado: Mobile Mega Sexo: F M Idade: _____

Annex E: Hypothesis test results for both stores

	aroma	N	Mean	Std. Deviation	Std. Error Mean
Lighting	Yes	198	4.11	.577	.041
	No	191	4.05	.706	.051
Layout	Yes	198	4.13	.620	.044
	No	191	3.95	.738	.053
Temperature	Yes	198	3.88	.744	.053
	No	191	3.69	.823	.060
Smell	Yes	198	4.46	.530	.038
	No	191	3.51	.672	.049
Sound	Yes	198	4.20	2.927	.208
	No	191	3.77	.812	.059
Overall store environment	Yes	198	4.21	.598	.043
	No	191	3.98	.653	.047
Product quality	Yes	198	4.16	.622	.044
	No	191	3.97	.652	.047
Support from the employees	Yes	198	4.22	.877	.062
	No	191	3.83	.986	.071
Relaxed	Yes	198	4.31	.769	.055
	No	191	4.27	.825	.060
Happy / Pleased	Yes	198	4.20	.745	.053
	No	191	4.01	.874	.063
Calm	Yes	198	4.25	.723	.051
	No	191	4.12	.834	.060
	Yes	198	4.21	.707	.050

Interested / Estimulated	No	191	3.98	.846	.061
Satisfaction with the overall store environment	Yes	198	4.39	.557	.040
	No	191	4.08	.691	.050
Intention to revisit the store?	Yes	198	4.57	.506	.036
	No	191	4.36	.703	.051
Products evaluated	Yes	198	1.90	1.006	.071
	No	191	1.81	.874	.063
Products bought	Yes	198	.76	.735	.052
	No	191	.76	.564	.041
Value spent	Yes	198	106.29	236.576	16.813
	No	191	118.58	212.448	15.372
Perception of time	Yes	198	14.24	10.358	.736
	No	191	17.49	14.116	1.021

Annex F : Independent Sample Test both stores

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Lighting	Equal variances assumed	5.449	.020	.981	387	.327	.064
	Equal variances not assumed			.977	366.907	.329	.064
Layout	Equal variances assumed	1.530	.217	2.587	387	.010	.179
	Equal variances not assumed			2.579	371.063	.010	.179
Temperature	Equal variances assumed	6.662	.010	2.360	387	.019	.188
	Equal variances not assumed			2.356	379.913	.019	.188

Smell	Equal variances assumed	14.486	.000	15.545	387	.000	.952
	Equal variances not assumed			15.480	361.002	.000	.952
Sound	Equal variances assumed	.270	.604	1.946	387	.052	.427
	Equal variances not assumed			1.976	228.190	.049	.427
Overall store environment	Equal variances assumed	2.374	.124	3.511	387	.000	.223
	Equal variances not assumed			3.506	381.245	.001	.223
Product quality	Equal variances assumed	2.198	.139	2.829	387	.005	.183
	Equal variances not assumed			2.826	384.277	.005	.183
Support from the employees	Equal variances assumed	1.299	.255	4.069	387	.000	.385
	Equal variances not assumed			4.061	378.287	.000	.385
Relaxed	Equal variances assumed	2.292	.131	.570	387	.569	.046
	Equal variances not assumed			.570	382.697	.569	.046
Happy / Pleased	Equal variances assumed	2.327	.128	2.332	387	.020	.192
	Equal variances not assumed			2.325	373.020	.021	.192

Calm	Equal variances assumed	.612	.435	1.607	387	.109	.127
	Equal variances not assumed			1.603	375.072	.110	.127
Interested / Estimulated	Equal variances assumed	1.024	.312	2.889	387	.004	.228
	Equal variances not assumed			2.879	370.259	.004	.228
How do you rate your satisfaction with the overall store environment?	Equal variances assumed	.130	.718	4.805	387	.000	.305
	Equal variances not assumed			4.787	364.626	.000	.305
How do you rate your intention to revisit the store?	Equal variances assumed	12.884	.000	3.467	387	.001	.215
	Equal variances not assumed			3.447	344.647	.001	.215
How many products did you evaluate?	Equal variances assumed	4.279	.039	.967	387	.334	.093
	Equal variances not assumed			.969	382.919	.333	.093
How many products did you buy?	Equal variances assumed	6.625	.010	-.102	387	.918	-.007
	Equal variances not assumed			-.103	368.522	.918	-.007
How much did	Equal variances assumed	.145	.703	-.538	387	.591	-12.288

you spend?	Equal variances not assumed			-.539	385.045	.590	-12.288
How long have you been in store?	Equal variances assumed	9.888	.002	-2.595	387	.010	-3.250
	Equal variances not assumed			-2.581	348.067	.010	-3.250

Annex G – Hypothesis testing for Mobile store

	aroma	N	Mean	Std. Deviation
Lighting	Yes	114	4.15	.583
	No	58	4.17	.729
Layout	Yes	114	4.26	.625
	No	58	4.24	.683
Temperature	Yes	114	4.04	.752
	No	58	4.05	.736
Smell	Yes	114	4.51	.519
	No	58	3.93	.672
Sound	Yes	114	4.15	.668
	No	58	4.14	.687
Overall store environment	Yes	114	4.37	.569
	No	58	4.36	.583
Product quality	Yes	114	4.28	.659
	No	58	4.33	.543
Support from the employees	Yes	114	4.67	.543
	No	58	4.69	.503
Relaxed	Yes	114	4.35	.764
	No	58	4.40	.724
Happy / Pleased	Yes	114	4.31	.693
	No	58	4.26	.828
Calm	Yes	114	4.37	.682
	No	58	4.34	.690
Interested / Estimulated	Yes	114	4.34	.689
	No	58	4.29	.726
How do you rate your satisfaction with the overall store environment?	Yes	114	4.52	.536
	No	58	4.47	.537
	Yes	114	4.63	.502

How do you rate your intention to revisit the store?	No	58	4.57	.565
How many products did you evaluate?	Yes	114	1.96	1.105
	No	58	1.93	1.024
How many products did you buy?	Yes	114	.68	.770
	No	58	.84	.696
How much did you spend?	Yes	114	85.11	197.924
	No	58	77.14	177.343
How long have you been in store?	Yes	114	12.26	9.752
	No	58	12.84	10.898

Annex H - Independent Samples Test – Mobile Store

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Lighting	Equal variances assumed	4.360	.038	-.227	170	.821	-.023	.103
	Equal variances not assumed			-.211	95.128	.833	-.023	.110
Layout	Equal variances assumed	.694	.406	.209	170	.834	.022	.104
	Equal variances not assumed			.203	106.102	.839	.022	.107
Temperature	Equal variances assumed	.000	.985	-.138	170	.890	-.017	.120
	Equal variances not assumed			-.139	117.002	.890	-.017	.120
Smell	Equal variances assumed	.356	.552	6.229	170	.000	.578	.093

	Equal variances not assumed			5.735	92.629	.000	.578	.101
Sound	Equal variances assumed	.356	.551	.103	170	.918	.011	.109
	Equal variances not assumed			.102	112.009	.919	.011	.110
Overall store environment	Equal variances assumed	.038	.846	.069	170	.945	.006	.093
	Equal variances not assumed			.068	112.190	.946	.006	.093
Product quality	Equal variances assumed	2.802	.096	-.467	170	.641	-.047	.100
	Equal variances not assumed			-.498	135.970	.620	-.047	.094
Support from the employees	Equal variances assumed	.475	.492	-.269	170	.788	-.023	.085
	Equal variances not assumed			-.276	122.900	.783	-.023	.083
Relaxed	Equal variances assumed	.014	.906	-.377	170	.707	-.046	.121
	Equal variances not assumed			-.384	120.393	.702	-.046	.119
Happy / Pleased	Equal variances assumed	4.063	.045	.405	170	.686	.048	.120
	Equal variances not assumed			.382	98.501	.703	.048	.127
Calm	Equal variances assumed	.000	.991	.214	170	.831	.024	.110

	Equal variances not assumed			.213	113.622	.832	.024	.111
Interested / Estimulated	Equal variances assumed	.382	.538	.433	170	.666	.049	.113
	Equal variances not assumed			.426	109.654	.671	.049	.115
How do you rate your satisfaction with the overall store environment?	Equal variances assumed	.000	.990	.601	170	.548	.052	.086
	Equal variances not assumed			.601	114.599	.549	.052	.087
How do you rate your intention to revisit the store?	Equal variances assumed	2.695	.102	.740	170	.460	.063	.085
	Equal variances not assumed			.712	103.564	.478	.063	.088
How many products did you evaluate?	Equal variances assumed	1.469	.227	.195	170	.846	.034	.174
	Equal variances not assumed			.200	122.798	.842	.034	.170
How many products did you buy?	Equal variances assumed	4.628	.033	-1.408	170	.161	-.169	.120
	Equal variances not assumed			-1.455	125.548	.148	-.169	.116
How much did you spend?	Equal variances assumed	.652	.420	.259	170	.796	7.976	30.849
	Equal variances not assumed			.268	126.507	.789	7.976	29.764
How long have you been in store?	Equal variances assumed	1.328	.251	-.355	170	.723	-.582	1.637

	Equal variances not assumed			-.343	104.180	.733	-.582	1.698

Annex I – Hypothesis Testing – MegaStore

Group Statistics- Megastore				
	aroma	N	Mean	Std. Deviation
Lighting	Yes	84	4.06	.567
	No	133	3.99	.691
Layout	Yes	84	3.94	.567
	No	133	3.82	.726
Temperature	Yes	84	3.67	.683
	No	133	3.53	.812
Smell	Yes	84	4.40	.540
	No	133	3.33	.587
Sound	Yes	84	4.27	4.441
	No	133	3.62	.814
Overall store environment	Yes	84	3.99	.570
	No	133	3.82	.613
Product quality	Yes	84	3.99	.526
	No	133	3.82	.638
Support from the employees	Yes	84	3.61	.878
	No	133	3.46	.909
Relaxed	Yes	84	4.26	.778
	No	133	4.21	.862
Happy / Pleased	Yes	84	4.05	.790
	No	133	3.89	.873
Calm	Yes	84	4.08	.748
	No	133	4.02	.874
Interested / Estimulated	Yes	84	4.02	.694
	No	133	3.84	.860
How do you rate your satisfaction with the overall store environment?	Yes	84	4.21	.539
	No	133	3.92	.686
How do you rate your intention to revisit the store?	Yes	84	4.49	.503
	No	133	4.26	.737
How many products did you evaluate?	Yes	84	1.82	.853
	No	133	1.76	.799
How many products did you buy?	Yes	84	.87	.673
	No	133	.73	.494
How much did you spend?	Yes	84	135.02	279.384

	No	133	136.65	224.280
How long have you been in store?	Yes	84	16.93	10.607
	No	133	19.52	14.896

Annex J- Independent Samples Test – MegaStore

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Lighting	Equal variances assumed	4.873	.028	.745	215	.457	.067	.090
	Equal variances not assumed			.778	200.638	.437	.067	.086
Layout	Equal variances assumed	9.358	.003	1.296	215	.196	.121	.093
	Equal variances not assumed			1.369	205.430	.172	.121	.088
Temperature	Equal variances assumed	4.261	.040	1.246	215	.214	.133	.107
	Equal variances not assumed			1.296	198.190	.197	.133	.103
Smell	Equal variances assumed	.114	.736	13.535	215	.000	1.074	.079
	Equal variances not assumed			13.790	187.316	.000	1.074	.078
Sound	Equal variances assumed	1.197	.275	1.665	215	.097	.657	.395

	Equal variances not assumed			1.342	86.535	.183	.657	.490
Overall store environment	Equal variances assumed	4.920	.028	2.025	215	.044	.169	.083
	Equal variances not assumed			2.059	186.141	.041	.169	.082
Product quality	Equal variances assumed	10.490	.001	2.025	215	.044	.169	.083
	Equal variances not assumed			2.114	200.099	.036	.169	.080
Support from the employees	Equal variances assumed	.299	.585	1.188	215	.236	.148	.125
	Equal variances not assumed			1.197	181.118	.233	.148	.124
Relaxed	Equal variances assumed	2.132	.146	.444	215	.658	.051	.116
	Equal variances not assumed			.454	189.856	.650	.051	.113
Happy / Pleased	Equal variances assumed	3.011	.084	1.303	215	.194	.153	.117
	Equal variances not assumed			1.333	189.460	.184	.153	.115
Calm	Equal variances assumed	1.194	.276	.527	215	.599	.061	.115
	Equal variances not assumed			.546	196.231	.586	.061	.111
Interested / Estimulated	Equal variances assumed	8.563	.004	1.629	215	.105	.182	.112

	Equal variances not assumed			1.710	202.430	.089	.182	.106
How do you rate your satisfaction with the overall store environment?	Equal variances assumed	1.478	.225	3.365	215	.001	.297	.088
	Equal variances not assumed			3.550	204.795	.000	.297	.084
How do you rate your intention to revisit the store?	Equal variances assumed	3.271	.072	2.457	215	.015	.225	.092
	Equal variances not assumed			2.670	213.700	.008	.225	.084
How many products did you evaluate?	Equal variances assumed	.274	.601	.543	215	.588	.062	.114
	Equal variances not assumed			.535	168.132	.594	.062	.116
How many products did you buy?	Equal variances assumed	.407	.524	1.759	215	.080	.140	.079
	Equal variances not assumed			1.644	139.095	.102	.140	.085
How much did you spend?	Equal variances assumed	.019	.892	-.047	215	.962	-1.623	34.426
	Equal variances not assumed			-.045	148.812	.964	-1.623	36.159
How long have you been in store?	Equal variances assumed	5.254	.023	-1.387	215	.167	-2.590	1.868
	Equal variances not assumed			-1.494	211.863	.137	-2.590	1.734

Annex K- Reasons not to implement

Reasons presented by the employees to not implement the scent devices were "The scent is nauseating", "causes allergy", "It's not my kind of aroma", "For those who have to deal with the aroma all day long, it becomes annoying and nauseating. It was too intense, and I didn't find it pleasant", "It would be much more important to invest in store temperature", "First, employees who were constantly near the aroma have difficulty because the smell becomes nauseating. Secondly, for a store of this kind the aroma does not fit (as it would be in the home zone e.g.). It would be better to take care of temperature and hygiene, making a store more appealing to enter. Also, the presentation mode (colors, images, etc.)", "Unpleasant aroma, bad implementation method, should be top to bottom", and "does not fit the store and the aroma is too strong so it does not add value. If it were to implement the aroma it would have to be less strong and a more neutral fragrance".

Annex L - Principal component analysis - Sound

Correlation Matrix						
		Lighting	Layout	Temperature	Smell	Sound
Correlation	Lighting	1.000	.455	.379	.256	.178
	Layout	.455	1.000	.387	.318	.147
	Temperature	.379	.387	1	.420	.146
	Smell	.256	.318	.420	1.000	.188
	Sound	.178	.147	.146	.188	1.000

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	287.846
	Df	10
	Sig.	.000

Communalities		
	Initial	Extraction
Lighting	1.000	.509
Layout	1.000	.540

Temperature	1.000	.553
Smell	1.000	.447
Sound	1.000	.153