

Retail Design and Sensory Experience: Design Inquiry of Complex Reality

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Abstract

Understanding sensory stimulation of people in human environments is vital to designing an interior space. The senses play critical roles in human experience and the memories and emotions tied to it. In retail design brands associated to sensory experience attract customers and stimulate strong, positive, and distinctive impression across all five senses. In this case multiple sensory cues are found in a store interior including store and display layout, lighting, interior fixtures and furnishings, music, and air quality such as fragrance and temperature. All contribute and complement each other in orchestrating the complexity of interiors.

Malnar and Vodvarka provide sensory schematics to analyze the built environment. They devised a *sensory slider* to tap the clarity for a particular sense (Malnar & Vodvarka, 2004). Analysis of resulting sensory levels in interior environments provides expanded understanding of the interior's physical condition in relation to sensory perception of users. For retail, the sensory slider was simplified and adapted to analyze visual, acoustical, olfactory and tactile information in store "S". Key factors are found: (1) visual cues are most evident in retail interiors supporting previous research; (2) non-visual stimulations are evident in design narratives revealing emotional domains; (3) multi sensory experience supports literature on branding practices in retail; (4) interior detailing appear to impact all senses.

Using the tool contributes to creating a conceptual framework when evaluating physical environments and emotional factors concerning customers satisfaction. Implication on the application of the method to the design practice is noted. Interior designers as collaborators with retailers will find it useful for the branding and for new store design and services. Insights and directives from this work suggest added research possibilities and application in interior design, graphic design, as well as store marketing and retailing.

Keywords

Design methods; interior design; human factors; sensory experience; experiential knowledge

Introduction

Issue

In retail, storeowners and retail designers are concerned with success of market strategies driven by customers' desire, perception and satisfaction. As sensation-seekers, according to Floor (2006), consumers enjoy being inspired by a unique range of experiential shopping environments. These experiences and attractions include seeing, hearing, touching, smelling, and tasting products on display. Further, Healey relates customers' brand experience with what is memorable. He addresses customers' purchasing behavior as being driven by storytelling and emotions. A fact exploited by brands (2008). Other studies suggest that store location, atmosphere, emotional attributes, sensory stimulation, and visual presentation are contributing factors to customers' behavioral responses (Ahn, 2008; Andreu, 2006; Gobé, 2001; Lam, 2001; Park & Farr, 2007; Healy, 2008; Song, 2009). While studies show these factors influence visitors' perception of the store, the application and understanding of sensory stimulation and its

association in retail interiors remain limited. In what manner do people perceive memorable shopping experiences? How does the physical environment draw customers' attraction through human senses? How might we design a space to create positive memory and sensory appeal?

Sensory Branding in Retail Design

The effect of sensory stimulation on people and their environment is vital to designing an interior space. The senses play critical roles in memories and emotions attached to human experience. Lindstrom (2005) states that our emotions are linked to the information gathered through the senses. He introduced the concept of *sensory* branding that stimulates and enhances consumers' imagination and perception, creating emotional ties between the brand and consumer. Sensory stimuli can motivate consumers' purchasing behavior, spark their interest, and allow emotional responses to dominate their rational thinking (Lindstrom, 2005). Lindstrom gives an example of customers' personal interaction at Starbucks' coffee shop where the brand is associated with a sensory experience stimulating a strong, positive, and distinctive impression across all five senses. In this case multiple sensory cues are tapped; lighting, furniture, interior furnishings, music, coffee and aroma, which all contribute and complement each other as if a sensory orchestration. When the sensory experience is maximized, the store atmosphere creates a compelling experience that consumers will want to repeat through repeated visits.

According to Gobé "Understanding your customer well and catering to the taste and the aspiration of that customer is the key to building a long-lasting relationship" (Hellman, 2007, p.135). His philosophy of using the *senses* for a retail brand led to the success in redesigning the brand new style for Godiva. He emphasized that the connection between the sensuality of chocolate and the retail design creates an emotional dimension that customers could experience within the retail store (Hellman, 2007). At Godiva, the store experience is enhanced by a stylistic design of the interior, incorporating the brand's history and origins in Art Nouveau in Brussels (Figure 1). Visual sense is emphasized by adding interior details such as brass light fixtures, the wall mural, a large curved glass case, wire sign holders, white marble tabletops and cherry-wood counters, all contributing to European elegance and luxury. Sensory appeal is

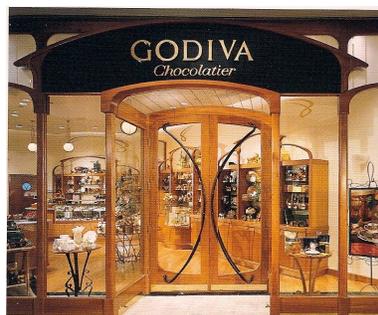


Figure 1. The entrance to the Godiva store

doubled with the unpackaged individual pieces of chocolate that are displayed for the customers to taste and smell, bringing multi-sensory level and personal bond with the customers. Healy (2008) addressed the impact of using a brand history and states that most buying behavior is driven by storytelling, experience and emotion. "The experience of enjoying a great story is powerful one that pulls in all of our senses and immerses us so that we feel as if we are actually living the story" (Healy, 2008, p.28). His branding perspective reminds designers a fact that emotions drive our behavior including buying. Experience is the best way for consumer to

appreciate things, whether the service or the product; experience is usually the most memorable aspect of each thing we buy (Healy, 2008).

Purpose

This study involved customers' sensory experience related to the overall store interior. The objectives have a two step design: (1) to develop an analysis tool to identify and describe sensory strengths, sensory limitations and their potentials in retail settings and (2) then using the tool examine existing sensory conditions from consumer and employee perspectives. Research questions include: (1) what kinds of sensory experiences currently occur in retail environments? (2) In what manner do the physical environmental features interface with these kinds of human senses? (3) What directives emerge for interior designers doing retail spaces? The answers to these questions will amplify the development of sensory design in the field.

Review of Literature

“The external senses have a double province; to make us feel, and to make us perceive. They furnish us with a variety of sensations, some pleasant, others painful, and others indifferent; at the same time they give us a conception, and an invincible belief of the existence of external objects.....The feeling which goes along with the perception, we call sensation. The perception and its corresponding sensation are produced at the same time. In our experience we never find them disjointed. Hence we are led to consider them as one thing, to give them one name, and to confound their different attributes....” (Reid, 1785)

Sense, Sensation and Sensory Experience

Knowledge of sensation and perception, particularly their causes and processes, has been studied across fields such as philosophy, psychology, physiology, and psychophysics through cognitive theory. Researchers in scientific inquiry suggest how senses are detected, how it feels to perceive them and how they provide sensory information (Goldstein, 1996). Gibson (1966) defines the term *senses* as the systems for human perception that furnish us with a variety of sensations. He explains that the *senses* can obtain information about objects in the world without the intervention of an intellectual process (Gibson, 1966). When the senses are stimulated, each sound, taste, smell, touch, and image sends *sensory* information to our brain, where the sources and causes of stimulation are processed and perceived (Augustin, 2009).

The process of perceiving our built environment involves more than a sequence of steps resulting in experiences called *sensation*. Human experience is affected by cognitive processes such as thinking and memory that are obtained by organizing and integrating information and making inferences from it. Researchers accounted for the perceptual complexity of *sensation* that was converted into perception by past experience or memory (Helmholtz, 1925; Titchener, 1910). Human sensory experience involves more than a single sense (Augustin, 2009; Gibson, 1966; Goldstein, 1996). The ways in which humans respond by looking, listening, sniffing, tasting, and touching are not only achieved by the single input of sensation, but also by a combination of perceptual systems that overlap one another (Gibson, 1966). Goldstein (1996) describes the process of perception as an interaction between the information stimulating the receptors and information from our past experiences that already exists. Sensory inputs have direct influence on human behaviors and attitudes. Our emotional and cognitive responses are affected by our feelings from seeing, hearing, tasting, touching, and smelling (Augustin, 2009).

In retail environments, different levels of stimulation can add multiple dimensions to the sensory experience. A customers' experience is extended when exploring, orienting, and investigating different levels of sensory inputs that are available in the retail space. Thus sensory experiences are of particular importance to retailers because the store environment has a greater effect on a customers' emotional response to an object or place.

Visual Sense and Sensory Information

Sensory experience has origins from visual, auditory, tactile, and olfactory systems influencing humans' cognitive responses (Augustin, 2009; Gibson, 1996). Among the different sensory systems visual information primarily influences how we analyze things around us. Sight not only affects humans physically and psychologically, but also has strong association with other senses. When we touch something that we don't see, we try to determine what we are touching with the sound, smell, and taste of the object. Lindstrom (2005) mentioned that sight often overrules the other senses, and has the power to persuade us against all logic. Designers always consider physical visual stimulation, which is just one role of visual design.

Furthermore, intricate details are used to prolong visitor's stay. According to Clark's study, people remember simple figures more easily than complex ones (Lawless, 1978). People are fascinated by ornament details, because those details cannot be remembered for along time. It is thus ever new and interesting, and people are willing to devote their information-seeking attention to it (Malnar & Vodvarka, 2004). Therefore, people linger longer time in a space where there are more details than in one with fewer details. This approach can be used by designers to control rate of movement. Far from concealing deficiency or redundancies, ornament delivers vital function. It precisely identifies a space, including its social and cultural function, and transmits that identity to the audience (Malnar & Vodvarka, 2004).

Through the visual sense, all the store elements in front of the customers' eyes will have a role in their perceived impact. Massara and Pelloso (2006) introduced the concept of the macro, the meso and the micro environment (Figure 2). The macro-environment concerns all the variable

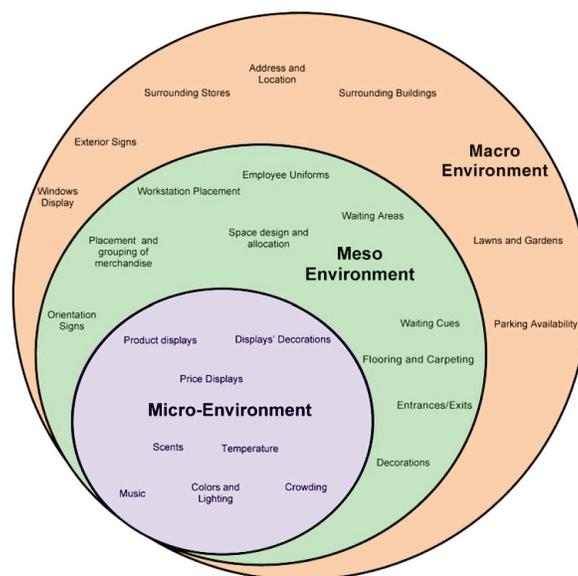


Figure 2. Scales of the store environment (Massara & Pelloso, 2006, p. 521)

on the exterior of the store whereas the meso-environment contains the variables that

determine the structure of the interior. The micro-environment includes elements within close proximity to the customers such as shelves and tabletops. This impact on the customers' memorable experience starts from meso-environment elements, such as floors finish and ceiling materials, to micro-environment elements, such as product packaging and brand logo. The glare on the floor, the distraction from light fixture, and the hidden product in the package may affect the customers' experience and create a negative impact. Their judgment will be embedded in their mind with the brand. Therefore the sensory experience will be focused within the meso and the micro-environment.

Non-Visual Sense and Sensory Information

Even though vision is our primary sense, we use our other senses more often than we realize. Our other senses contribute a significant amount of extra information and experience to our everyday lives. Healy (2008) expressed the need for branding professionals to consider the other senses in designing every aspect of the brand experience: product, packaging, advertisement, and designing of retail environment.

In interior design practice, smell seldom receives attention. However, smell has a strong association with feeling and influences people's activities. Odor is a key motivational factor in human behavior, playing a critical role in behavior patterns. Smell affects areas of the brain that deal with emotions, feelings, and motivation, which can lead to a specific behavioral response. According to Malnar and Vodvarka, taste and smell usually function in concert and can be regarded as alternatives ways to experience similar phenomenon (Malnar & Vodvarka, 2004). Tuan suggested that odors lend character to objects and places, making them distinctive, easier to identify and remember (Tuan, 1977). Pleasant odor and fragrance provide a space with a favorable identity. Floor (2006) stated that coffee shops, candle stores, perfumeries, bakeries, and lots of other stores are characterized by the smell of their products as part of their meso and micro experience. Specific fragrances perform precise functions. For example, lemon and peppermint can reinforce alertness and energy; lavender and cedar can reduce tension (Iwahashi, 1992). This is why lavender fragrance is adopted in spas, and air fresheners mainly have a lemony smell. This theory has been put into use by interior designers. For example, several large companies introduce fragrance to heating and air condition systems to boost work efficiency and reduce stress. Fragrance makes a space more favorable to some; while if allergic to smells some could object. Knowing a range of responses has application in interior design practice.

"Without sounds, visual perception is different: less contrasting, less attention-demanding, and less informative" (Malnar & Vodvarka, 2004, p.138). When referring to the sense of sound, background music may be the first thing to come to mind. However, hearing as related to sensory design, is more complicated than that. Sound has strong association with human emotion. According to Floor (2006), older shoppers shop longer and purchase more when background music is playing, while younger shopper respond similarly to foreground music. Sound can be used to attract more attention to specific products or to reach specific target groups. Sound also plays an important role perceiving a space and enhances sight sensory perceptions. An example of applying sound in retail environment is found at Abercrombie & Fitch stores (Gobé, 2001). They have DJs in the store that carefully select music appealing to the shoppers that is consistent with the brand' personality and attitude. Sound may complement vision to perceive space in respect that it enlarges one's spatial awareness to include areas behinds the head that cannot be seen. Therefore, sound dramatizes spatial experience (Tuan, 1977).

Like sight, the haptic information plays a significant role in perceiving the world. According to Malnar and Vodvarka, the haptic system includes three branches: touch, temperature and humidity, and kinesthesia (Malnar & Vodvarka, 2004). Designers may pay more attention to surfaces which customers regularly touch, applying different textures to achieve sensory perceptions. Lindstrom (2007) states that the feel of a product is essential in forming the perception we have of the brand. Enquist (n.d) adds to it that the sense of touch establishes our existence because as we touch we feel ourselves touching: it confirms the presence of whatever it is we are touching. This is important for the designer, especially in complex reality where people's stress levels generally seem to be at a maximum, and where there is a deficiency of connection and exchanges. According to Lindstrom's study 35 percent of the interviewed consumers stated that the micro experience of how the phone felt was more important than the appearance. Further the study revealed that 46 percent of U.S consumers thought the weight of the phone was more important than the look in their purchasing decision. The Apple store demonstrates its new iPhone on a display table so that customers can touch, hold, and feel their new product, making full use of the sense of touch. Studies have shown that customers are more likely to touch a product in the process of evaluating it. Mainly because touching substitutes the absence of information at the meso level where shoppers use their senses to gain more information, whether it includes the product itself, the store fixture, the room temperature, or even the door's handle. The ability to touch the product increases the chance that the product will be bought. If customer can grasp or feel products, shopping can become more pleasurable.

Research Method

Overview

Malnar and Vodvarka's book on *Sensory Design* offers a sensory slider, a tool (Figure 3) for analyzing and measuring sensory existence and its intensity in existing buildings.

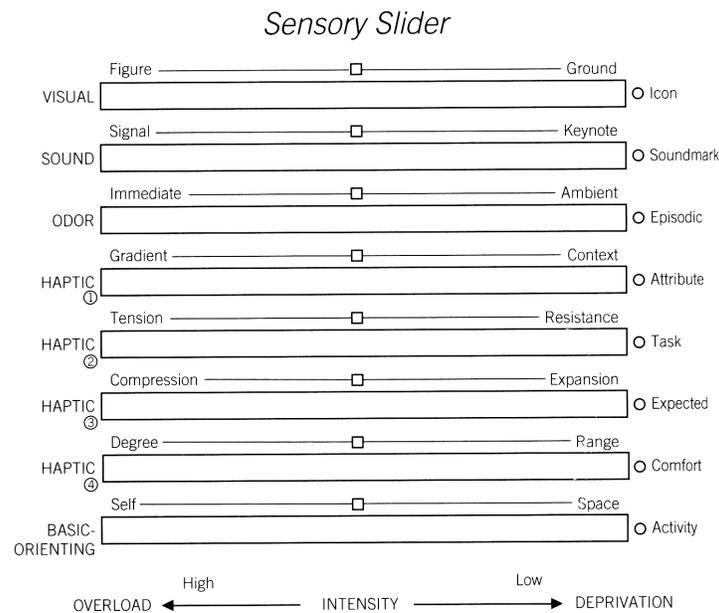


Figure 3. Sensory slider created by Malnar & Vodvarka (2004, p.248)

Analysis of sensory levels in interior environments requires observation of the interior's physical condition in relation to sensory perception of users. In order to study sensory stimulation and association in retail settings, a simplified version of the sensory slider was created (Figure 4). Using this adapted sensory tool, visual, sound, odor and haptic senses were analyzed to evaluate positive and negative values of existing sensory stimuli. The existing perception level, represented by a circle symbol (●) for each one of the four senses is shown in the slider while addressing the reasons that leads to that result. The expected value of sensory perception of the environment, represented by a square symbol (■), is shown as well while explaining what was supposed to be expected from that particular environment.

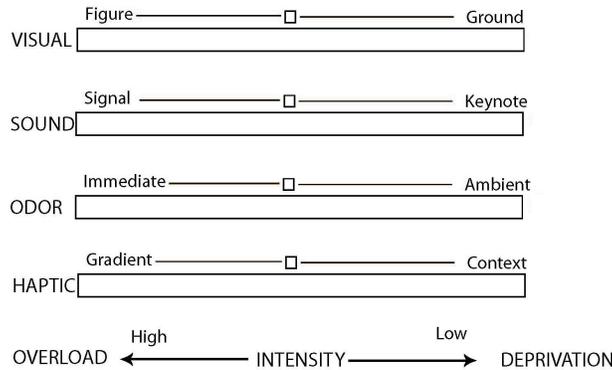


Figure 4. A simplified sensory slider

Site observations and sensory analysis followed three steps. (1) *Sensory diagnosis*: identifying common concepts to determine sensory strengths and sensory limitations, (2) *Sensory exploration*: testing the tool by analyzing consumer's sensory experience on the selected environment, (3) *Sensory treatment*: refining concepts and suggesting the sensory changes. Frequent on-site observation was conducted focusing consumers' use of space and their interaction within the store environment.

Site Analysis: "S" Retail Store

Analyzing the sensory level of an interior environment requires program information of the existing space in relation to sensory perception. The interior of "S" store is located within a two-story building with a total area of 1,992 square foot. The main entrance of the building faces Main Street of downtown providing visible access to the pedestrians. However, the display windows are not noticeable in terms of the store's identity, products, and service offered to attract customers from outside to inside. The interior space is divided into three distinctive zones: entry, point of sales and seating.

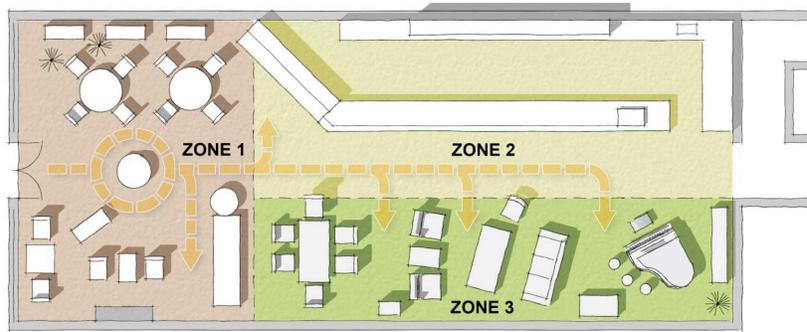


Figure 5. Circulation and zoning of existing store

Visitors enter the space through the entry door located at the front. Zone 1 is entry area that allows multiple seating, creating visitors' first impression. There is obvious flow of traffic along with distinct noise from the street, and other background sounds that are related to sales activity. This area exhibits a variety of items either for sale or for display only, creating distraction to a brand perception.

Major point of sales occurs in Zone 2 where gelato ice cream, fresh chocolate products and packaged items are displayed. Along the linear path traffic is congested by either groups or individuals due to the limited space facing the sales area. The majority of the visitors had their attention on the fresh product, although other visitors seemed interested in the products on display including pre-packed chocolate, coffee beans, gift items that are associated with a brand. Zone 3 has additional seating arrangement with a mixture of furniture types such as a dining table, a sofa and armchairs, a grand piano, and display cabinets.



Figure 6. Interior view

Sensory Analysis

The layout of space gives an understanding of space flow relevant to human behavior and responses. Based on the site analysis problems are identified by analyzing consumer's sensory experience on the overall store environment.

Visual Information

The sensory level is overloaded for this main sensory perception. This result is derived from the following reasons:

- Visual clutter all over the space
- Over stimulation from quantity and type of furnishings, fabrics, and finishes
- Distraction of unintended illumination
- Reflection from the high glass barrier

- Over crowded with non-related products such as personal photos



Figure 7. Indirect lighting



Figure 8. Visual clutter

The expected level of visual information is higher than the current level. The unmatched expectation for this sensory perception is missing the following:

- Organized layout
- Clear pathways
- Quality fabrics and finishes
- Focused and non-distracting lighting
- Cohesive presentation of product

The sensory level is analyzed in the sensory slider (Figure 9). The slider for the visual bar is set at a high intensity. There is a strong figural content and high level of differentiation from ground. However, the visual quality of existing condition is misleading due to the excessive amount of light, reflection and glare from the surface materials, and type and furnishings and fabrics causing over stimulation. The circle symbol represents the existing level of visual information while the square symbol represents the expected sensory level.

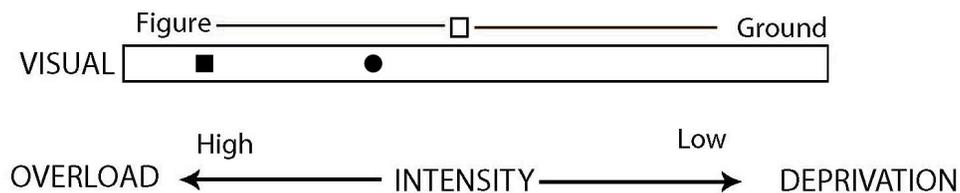


Figure 9. Visual rating on the sensory slider

Acoustical Information

The sensory level is set at a moderate level, providing a rich sound attribute. This result is derived from the following reasons:

- Sound system positioned at two ends of the store
- Diverse type of background music
- Musical performance on the weekend
- Customer's dialog, especially at the sales counter area
- Change in flooring material
- White noise, sounds from service area and mechanical sounds



Figure 10. Placement of grand piano Figure 11. Speaker location

The expected level of acoustical information is higher than the current level. The unmatched expectation for this sensory perception is missing the following:

- Calm, controlled, and unified music
- Quiet environment for human interaction at the sales area

The sensory level is analyzed in the sensory slider (Figure 12). The slider for the sound bar is set at a high intensity. There is a low signal/keynote ratio, suggesting higher value to the expected level. The circle symbol represents the existing level of visual information while the square symbol represents the expected sensory level.

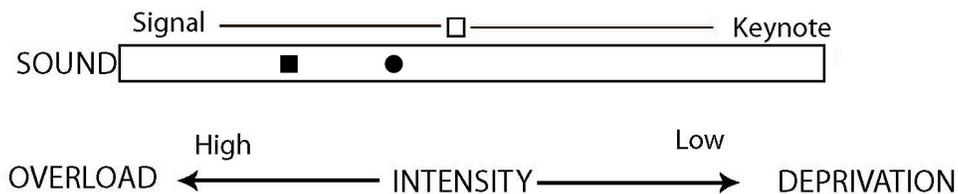


Figure 12. Sound rating on the sensory slider

Olfactory Information

The sensory stimulation is absent and the sensory level is at zero. This result is derived from the following reasons:

- No odor at all
- Temperature and atmosphere results in diminished smell
- Chocolate products are not made in-house

The expected level of olfactory information is significantly higher than the current level. The unmatched expectation for this sensory perception is missing the following:

- Given characteristics of the product and purpose of the space, the olfactory sense would be perceived to be high
- Low air circulation in certain areas
- Production of in-house chocolate products to have the freshly made chocolate smell

The sensory level is analyzed in the sensory slider (Figure 13). The odor information is very limited, however set at a central point. There is a high immediate/ambient ratio, suggesting

higher value to the expected level. The circle symbol represents the existing level of visual information while the square symbol represents the expected sensory level.

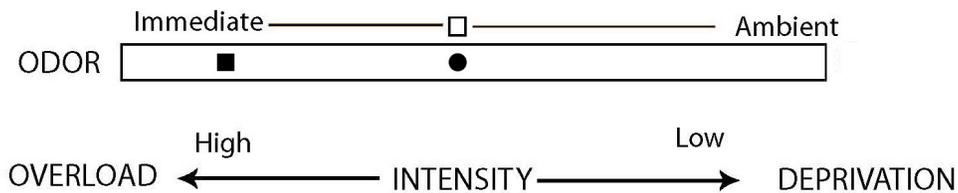


Figure 13. Odor rating on the sensory slider

Tactile Information

The sensory level is set at a moderate level, reflecting relatively low haptic rating. This result is derived from the following reasons:

- Tactile interaction is a secondary sense in the space
- Tactile stimulus comes from interaction with packaged products
- Coldness from the high glass barrier between customers and product at the sales counter
- Interference of multi-textured surfaces



Figure 14. Interior furnishings

The expected level of olfactory information is significantly higher than the current level. The unmatched expectation for this sensory perception is missing the following:

- Main objective of a space to observe, sit, eat and have social interaction without tactile interference
- The main source of tactile stimulus should be the product

The sensory level is analyzed in the sensory slider (Figure 15). The haptic information is set lower level. The circle symbol represents the existing level of visual information while the square symbol represents the expected sensory level.

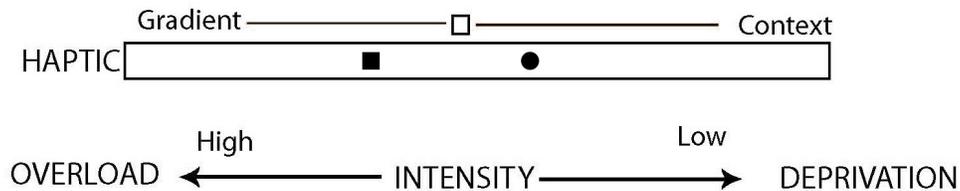


Figure 15. Haptic rating on the sensory slider

Conclusion

Relevance to Interior Design

The goal of sensory analysis of retail interiors is to determine problems and issues relevant to the customers' multi-sensory experience during the activity of sales, service, shopping, entertaining, and marketing. This study was exploratory given little research and writing on the relationship of human senses and retail interiors. The work does give direction for advancing the understanding of sensory perception as a key determinant of customers' attraction and satisfaction in retail. It clarifies for further study the hypothesis that a range and heightened sensory experience will induce stronger customers' shopping experience and thus sales and its meaning to design. Data can be further enhanced for maintaining or enhancing the existing condition and operational, aesthetic, expressive, and other qualities of retail design. Ultimately, the sensory tool may be applied to the creation of a unique retail experience as well as a range of other settings. Using the tool suggests the idea of creating a conceptual framework when evaluating the physical environment and creating emotional attributes toward customers' satisfaction. Interior designers as collaborators with retailers may find it useful for the branding of new store environments and related services. Insights and directions from this work suggest research possibilities and application in interior design, as well as store marketing and retail business.

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