



UNIVERSITY OF  
GLOUCESTERSHIRE

This is a peer-reviewed, post-print (final draft post-refereeing) version of the following published document:

**Ward, Philippa ORCID: 0000-0002-4971-8908, Davies, Barry and Kooijman, Dion (2004) Ambient Smell and the Retail Environment: Relating Olfaction Research to Consumer Behavior. *Journal of Business and Management*, 9 (3). pp. 289-302. doi:10.1080/0267257X.2003.9728228**

DOI: <http://dx.doi.org/10.1080/0267257X.2003.9728228>  
EPrint URI: <http://eprints.glos.ac.uk/id/eprint/281>

#### **Disclaimer**

The University of Gloucestershire has obtained warranties from all depositors as to their title in the material deposited and as to their right to deposit such material.

The University of Gloucestershire makes no representation or warranties of commercial utility, title, or fitness for a particular purpose or any other warranty, express or implied in respect of any material deposited.

The University of Gloucestershire makes no representation that the use of the materials will not infringe any patent, copyright, trademark or other property or proprietary rights.

The University of Gloucestershire accepts no liability for any infringement of intellectual property rights in any material deposited but will remove such material from public view pending investigation in the event of an allegation of any such infringement.

PLEASE SCROLL DOWN FOR TEXT.

This is a peer-reviewed, pre-print (final draft post-refereeing) version of the following published document:

**Ward, Philippa and Davies, Barry J and Kooijman, Dion (2004). Ambient Smell and the Retail Environment: Relating Olfaction Research to Consumer Behavior. Journal of Business and Management, 9 (3) 289-302.**

Published in the Journal of Business and Management, and available online at:

<http://search.proquest.com/docview/211516876?pq-origsite=gscholar>

We recommend you cite the published (post-print) version.

The URL for the published version is

<http://dx.doi.org/10.1080/0267257X.2003.9728228>

**Disclaimer**

The University of Gloucestershire has obtained warranties from all depositors as to their title in the material deposited and as to their right to deposit such material.

The University of Gloucestershire makes no representation or warranties of commercial utility, title, or fitness for a particular purpose or any other warranty, express or implied in respect of any material deposited.

The University of Gloucestershire makes no representation that the use of the materials will not infringe any patent, copyright, trademark or other property or proprietary rights.

The University of Gloucestershire accepts no liability for any infringement of intellectual property rights in any material deposited but will remove such material from public view pending investigation in the event of an allegation of any such infringement.

PLEASE SCROLL DOWN FOR TEXT.

**AMBIENT SMELL AND THE RETAIL ENVIRONMENT:  
RELATING OLFACTION RESEARCH TO CONSUMER BEHAVIOR**

*"I like the smell of that shop, I like the way it serves me..."*

Philippa Ward, Barry J Davies and Dion Kooijman\*

University of Gloucestershire  
Business School  
Pallas Villa  
The Park  
CHELTENHAM  
Gloucestershire  
GL50 2QF  
United Kingdom  
Tel +44 (0) 1242 543210  
Fax +44 (0) 1242 543208  
[pward@glos.ac.uk](mailto:pward@glos.ac.uk)  
[bdavies@glos.ac.uk](mailto:bdavies@glos.ac.uk)

\*Delft University of Technology  
Faculty of Architecture  
PO Box 5043  
2600 GA DELFT  
The Netherlands  
Tel +31 (0) 15 2785890  
Fax +31 (0) 15 2783171  
[d.c.kooijman@bk.tudelft.nl](mailto:d.c.kooijman@bk.tudelft.nl)

# AMBIENT SMELL AND THE RETAIL ENVIRONMENT: RELATING OLFACTION RESEARCH TO CONSUMER BEHAVIOR

*"I like the smell of that [shop], I like the way it serves me..."*

after: Crowded House (1993)

## Abstract

The focus of this article is the ability of smell to assist in the development and communication of retail brand image. We therefore present a number of propositions regarding ambient smell and the retail environment – including the potential for novel ambient aromas to act as a distinctive element in a retailer's marketing mix.

To assist in creating a developmental discussion, we draw on aspects of olfaction research in disciplines other than marketing. However, the core of the piece is derived from the model developed by Gulas and Bloch (1995), as well as work focused on the study of other environmental stimuli within retail settings. Our aim is to provide testable extensions to this framework: creating specific points of departure for further research.

## Key words

Smell, scent, retail brand image, retail environment, human olfaction.

## Introduction

A central concern for retailers is understanding the influence that their stores' physical environment has on their customers' perceptions and behavior. This is reflected in the interest and coverage given to the study of the retail physical environment by academics from a broad range of disciplines (e.g. Belk, 1975; Donovan and Rossiter, 1982; Bellizzi et al., 1983; Bitner, 1992; Baker et al., 1994). There has also been consideration of the relationship between a general physical setting and behavior in the broader environmental psychology literature (e.g. Mehrabian and Russell, 1974): which has, in many instances, informed the more specific consideration of retail environments.

Work in this field has focused on a stimulus-organism-response (S→O→R) approach, which was adopted by Mehrabian and Russell (1974), who suggested that the outcome of the influence of various environmental stimuli was revealed in approach or avoidance behavior. Mehrabian and Russell (1974) also proposed that intervening between the environmental stimuli and approach or avoidance are three emotional states: pleasure, arousal and dominance (PAD). The combination of these determines whether or not a person wishes to remain in a particular environment – i.e. approach or avoid.

Retailers therefore have to establish mechanisms by which they are able to ensure – or at least increase – the likelihood of *approach* behaviors being stimulated amongst their target market. In so doing, retailers are attempting not only to draw in target customers, but also to convert them into purchasers. Additionally, they are simultaneously creating an offer that will also lead to *avoidance* behavior in those that are not the intended audience. This means that retailers must make a careful and conscious use of the stimuli that are present in the physical environment.

The manipulation of such cues can be construed as an attempt at communicating a particular message to consumers (Davies and Ward, 2002), with the aim of achieving specific and immediate behavioral responses – stay, browse and purchase. Retailers may also seek to engender a *delayed* behavior – enjoy this store; come back and purchase again. Both responses are clearly of great potential value to retailers in both the short and long term.

However, as with any form of communication, it is important that the intended audience decodes the intended message appropriately. This helps to highlight the importance of making such communication intelligible, and to understand what affects the perception and interpretation of the message by its recipient.

This type of communication – through the physical environment – can be considered a form of ‘oral’ communication (Kooijman, 2003). Here, “oral” is taken to mean “the whole of the unwritten form of communication” (Mostert, 1998, p.9). It subsumes elements such as the spoken word, attitudes, gestures, smells, flavours and non-verbal messages. In trying to marshal the variety of environmental cues available to them in their sales methods, retailers are attempting to manipulate the ‘emotionality of the customer bond’; and are, in essence, trying ultimately to reach a condition of flow in the consumption experiences that they facilitate (Kooijman, 2003). “Flow”, in this context, can be seen as one of the benefits of visiting a retail environment; and has been defined by Bloch et al. (1994) as being a pleasurable state of absorption with which time simply seems to drift by.

Kooijman’s (2003) suggestion has clear linkages with the model presented by Mehrabian and Russell (1974). In both contexts, the propositions hinge on the ability of the physical environment to stimulate an emotional response; and that the resulting emotions act as a mediating factor in consumers’ behavior – one focusing on approach/avoidance, and the other on approach (characterized as “absorption”).

The clear links between such diverse conceptual propositions reinforces the centrality of the physical environment and its ability to stimulate both emotion and behavior. It is therefore unsurprising that the marketplace is filled with attempts to stimulate such responses in consumers. Those retailers that better understand the “bundles of store design attributes” (Merrillees and Miller, 2001), and that are able to manipulate them most effectively, will generate both positive emotional experience and approach behavior. Therefore, this work focuses on retailers’ attempts to communicate and to engender responses, both emotional and behavioral, in relation to a specific stimulus – smell; and, in particular, the use of ambient scent.

### **Environmental stimuli in retailing**

There has been considerable interest in the importance and effect of various types of environmental stimuli. For example:

- The influence of sound – often examined as music (e.g. Milliman, 1982 and 1986; Donovan et al., 1994; North and Hargreaves, 1999; Chebat et al., 2001; Dube and Morin, 2001).
- Color, texture, shape and layout – often considered as part of store décor or design, or as store characteristics or dimensions (e.g. Spies and Hesse, 1997; Tai and Fung, 1997; Baker et al., 2002).
- Lighting (e.g. Areni and Kim, 1994).

In fact, it is the aspects of *visual* stimuli that have received the most attention in the literature (Davies and Ward, 2002), followed by aspects related to music. Stimuli that are received through other senses – for example, the haptic and olfactory, and other aspects of the aural – have not gained as much attention. Even Mehrabian and Russell (1974) do not pay much attention to smell. Smell is of course part of their analysis of stimuli, but, at the same time, “beyond our scope” (p.68). This illustrates a common theme within the literature on physical elements of the store environment, where smell is acknowledged but not developed. However, there have also been several calls for more detailed research on the importance and influence of smell – in retail environments in particular (e.g. Spangenberg et al., 1996; Wakefield and Blodgett, 1996; Bone and Ellen, 1999).

Bone and Ellen (1999) indicate that smell influences respondents in relation to:

- elaboration – defined from both discursive and image-processing perspectives;
- affective and evaluative responses;
- purchase and repeat visit intention; and

- behavior – time spent, and decision making.

Within each of these areas, however, the influence of scent varies, and it is suggested that this variance is the result of both individual and contextual effects. Such a variety of findings is a feature of the research conducted on smell in service (and in particular retail) settings, and is, perhaps, in part, one of the reasons that smell has received less attention than it deserves from service and retail academics. The difficulty of considering the importance of smell in service settings is not helped by what Bone and Ellen (1999) consider to be a gap in knowledge regarding the mediating factors associated with olfaction. The existence of this gap may be the reason that smell is regarded as the most enigmatic sense.

McPherson and Moran (1994) concur that, of all the sensory functions, olfactory discrimination seems to be the 'most mysterious'. In Süskind's novel, *Perfume* (1985), this notion is used to good effect. The plot turns on the principal character's lack of personal odor, coupled with his exceptional olfactory acuity. After training as a perfumer, he manipulates the emotions and behavior of those around him by creating a wide range of personal scents. These fragrances create an effect on other individuals, who remain unaware (in large part) of the scent and its influence. This fictional use of the power of smell emphasizes its potentially mysterious nature, and serves to remind the reader that, of all our senses, smell is perhaps the one that we least understand.

Gulas and Bloch (1995) also recognized this lack of understanding, and developed a model of the possible influence of ambient scent on consumer responses. This model begins to consider the influence of mediating factors on behavioural responses to smell. To provide a clear conceptual framework for consideration, the Gulas and Bloch model is informed by the work of environmental psychologists, and in particular the approach/avoidance precept:

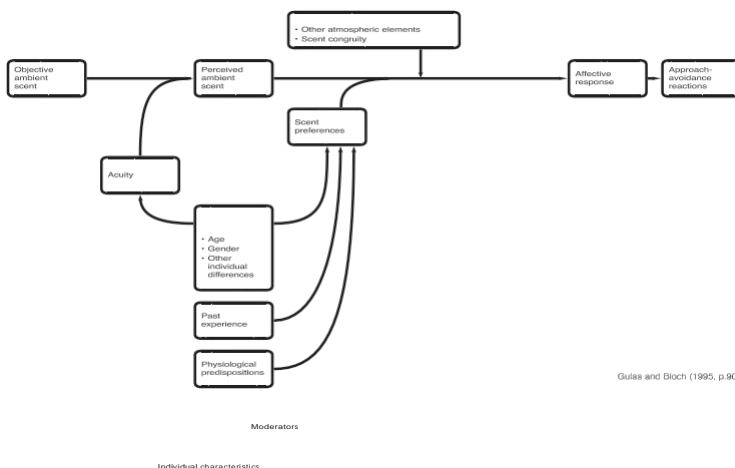


Figure 1  
Model of the influence of ambient scent on consumer responses

Gulas and Bloch's model represents an important step in developing a specific consideration of ambient scent perception. It also attempts to identify the chief factors related to individual consumers and their approach/avoidance behavior. However, whilst the model provides a significant starting point, Gulas and Bloch also call for additional research on smell – specifically within retail environments.

A number of researchers in the retail and psychology traditions have responded to such calls for further work in the field of ambient scent. Work has also been undertaken by researchers in disciplines such as architecture and geography (see, for example: Biswas, 2001; McDonagh et al., 2003 and Urry, 1999) – where there has been consideration of the 'scent of place'. These contributions, from such a range of disciplines, require a response that seeks to integrate knowledge in the context of the retail environment.

## **Statement of purpose**

This paper therefore seeks to provide linkages between the research conducted in various fields of scholarship and its potential application in retailing. To do this, it builds upon the Gulas and Bloch model by introducing other considerations that might usefully enrich the framework. It also strives to create a focus for future research on ambient scent within retail environments by presenting broadly testable propositions – founded on the work of those studying olfaction from various perspectives. The precise formulation of the proposition(s) to be tested will need, of course, specification for the particular circumstances of application.

The use of scholarship from a range of disciplines also enables a deeper understanding of the potential power of smell to both help create atmosphere and a discernible and distinctive retail brand. The paper therefore also aims to signal the potential of ambient smell to contribute to the management of retail outlets and brands.

## **Smell reception and processing in humans**

What is known is that the human body has between 6 and 10 million receptor cells located in the olfactory epithelium; and that, by using these cells, humans can distinguish some 2,000 to 4,000 different aromas (Strugnell and Jones, 1999). This human sense may, however, be very poor, especially when compared with the 220 million cells of a sheepdog's nose, and the 200 million light-sensitive cells of the human eye – it is, though, still remarkably acute (Gulas and Bloch, 1995). The lower number of receptor cells in humans led McPherson and Moran (1994) to suggest that for each smell molecule there exists a corresponding receptor site. As yet, there is still a lack of confirmation, and research on the physiology of smell continues (e.g. the academic research funded by the Sense of Smell Institute – see Gilbert (1995); Lorig (2001)). It has also been suggested that there are 1,000 different receptor proteins, and that each is able to detect a small number of different scent molecules (*Economist*, 1998).

Despite the apparent simplicity of a correspondence between smell molecules and receptors, smell – as a sense – appears to contribute to our perception of the *totality* of a set of stimuli in a complex way. In this context, smell is only one element of the information drawn from our various senses that is processed to arrive at a final perception. Therefore, the totality of the perceived experience can be different from the individual perceptions attached to a particular stimulus. For example, when smell is associated with an unusual color in food, people are sometimes unable to correctly identify what is presented to them (Blackwell, 1995). This means that an experience is not a simple additive summation of the individual stimuli encountered, but rather a complex interaction in which judgment, norms, prior experience and expectations all have a part to play. Such notions of totality and congruency indicate the need to develop further the Gulas and Bloch (1995) model, where they are not fully represented.

In the sections that follow, areas not fully developed in Gulas and Bloch's (1995) framework are considered, starting with those focused on issues of totality and congruity. These are then linked to propositions that may eventually be tested by other researchers and, possibly, retailers. The topics are grouped in three principal areas:

- the perceptual processes in olfaction;
- the influence and importance of physiology on smell; and, finally,
- the interplay of these two preceding factors.

## **Perceptual processes in olfaction**

### ***Totality and congruity***

Notions of congruity between stimuli have been examined to some degree in the retail context (Mitchell et al., 1995; Mattila and Wirtz, 2001). The issues of congruency and totality appear to be central to understanding the overall perceptions formed by a consumer when interacting with stimuli in retail environments. Adding such concerns to the treatment of ambient smell would therefore be appropriate.

This suggestion is consistent with the issues raised by Turley and Milliman (2000), who advocate research on the connections between all the environmental cues and buyer behaviour. It also echoes Doyle and Broadbridge's (1999) proposition that it is the 'principle of totality' within retail design that is key:

*...all features of a design must share a common purpose. The design process should not consider features of the design in isolation, but within the context of their relationship to all other features and the purpose for which they exist. Within a design, each aspect is equally important and its eventual fulfilment is essential for the design to be considered total. The principle of totality is concerned with ensuring that there is a logical relationship among the components of the retail mix, the retailer's self-perception, the perception of the customer and the customer's requirements.*

These sentiments also serve to reinforce the connection between atmosphere (created by the elements of the mix); identity (the retailer's self-perception), and image (the perception of the customer). However, as a potential stimulus, many retailers have overlooked smell. For many, its control centers on the removal or avoidance of malodors, and those retailers that do use smell positively – often through the introduction of an ambient scent – are chiefly concerned with the environment being pleasant or enticing. These notions fit well with the application of an approach-avoidance framework at the broadest level. What is perhaps missing is consideration of the importance of smell in the development of the 'retail composition' – in terms of atmosphere, but most notably in relation to image and identity.

- *Proposition 1: Where ambient scent is perceived as congruent with the other environmental stimuli present in a retail environment (denoting totality of design), consumers are able to develop a stronger image of the retail brand.*
- *Proposition 2: Where ambient scent is perceived as congruent with the other environmental stimuli present in a retail environment (denoting totality of design), consumers will respond more clearly (either positively [approach] or negatively [avoidance]) to the retail proposition.*

### **Smell processing**

The *processing* of smell stimuli has also received increased attention. Here, researchers suggest that smell can begin to be processed before a person is even 'aware' of the scent (Lorig, 2001). They also propose that smell can be perceived at various levels (Krauel and Pause, 2001). However, they go on to suggest that for *conscious* perception of smell to occur, *attention* must be paid to the stimulus. The application of attentiveness to smell stimuli, Lorig (1989, cited in Krauel and Pause, 2001) suggests, rests on the inherent *significance* and *novelty* of the odor. Krauel and Pause (2001) also indicate that "basic odor qualities... can be detected automatically" (p.66).

Such propositions begin to provide a possible explanation for the ability of consumers to respond to smell without being able to clearly enunciate its influence on their affect and/or behavior. This type of response may usefully be labeled pre-attentive, in that the possibility exists of behaviors being generated without the need for conscious perception.

Whilst retailers have tended to consider the influence of the stimuli that they apply in terms of the visual or aural, they have often done so on the basis that the customer attends at some level to the stimulus. This means that, for the stimulus to have an impact, the customer must 'see' or 'hear' it. However, in the case of an aroma the suggestion is that the customer does not have to 'smell' it. Rather, by its presence, an aroma can be processed and produce an effect, without the customer having to consider (attend) to the stimulus. This presents retailers with a unique opportunity among the senses – they can introduce a smell that will be 'perceived', even if the customer does not pay attention to it. Smell is therefore something that the customer cannot ignore.

- *Proposition 3: Where retailers introduce a scent that is novel and significant into store environments, consumers are more likely to consciously attend to that smell stimulus.*



- *Proposition 4: Where retailers introduce a scent that is novel and significant into store environments – and that scent is also congruent with the retail proposition – consumers are able to develop a stronger image of the retail brand.*
- *Proposition 5: Where retailers introduce a scent that is novel and significant into store environments – and that scent is also congruent with the retail proposition – consumers will respond more clearly (either positively or negatively) to that retail proposition.*
- *Proposition 6: Where retailers introduce a positively regarded ambient scent in a way that for most customers gives rise to only pre-attentive processing, greater approach behavior will nevertheless be exhibited.*
- *Proposition 7: Where retailers introduce a positively regarded ambient scent in a way that for most customers gives rise to only pre-attentive processing, this will give rise to (positively) altered perceptions of brand image attributes.*

## **The influence and importance of physiology**

### ***Olfaction memory***

Annett (1996) suggests that, whilst olfaction memory may not be entirely distinct in the manner in which it operates from the memory of other stimuli, it is perhaps also *qualitatively* different. She also proposes that perhaps “the sensation/perception (and hence sensation/cognition) contrast [is] more obvious in olfaction than in vision” (p.314). Annett therefore contends that to relegate olfaction memory to non-cognitive status might be inappropriate. However, Vroon (1995) and Draaisma (2001) suggest that smell perception and memory may follow a non-cognitive pattern: as both authors stress the early stage in evolution when the sense of smell developed, along with that part of the brain where the sense information is elaborated – the limbic system. This is a cluster of brain parts low in the human skull that plays a part in the functions of awareness and emotion. There is only (literally) a short distance that smell has to travel from the nose to this part of the brain. The fact that we lack an adequate language to describe smell indicates, according to Vroon and to Draaisma, that there is no cognition (hence language) involved. (There is clearly a divergence of opinion here; but what appears consistent is the notion that smell is an elemental and important human sense that is yet to be fully understood.)

If indeed smell is an elemental sense, and one in which olfactory memories are communicated directly to the limbic system, this means that it provides a powerful mechanism through which retailers can affect a customer – even though customers may not necessarily be able to vocalize, recall or elaborate what smell they are exposed to. This particular distinction in the way in which olfaction memory operates concerns the processing of stimuli themselves – our ability to *categorize* a particular chemical stimulus, not its association with prior life-events and the memories that this might *evoke*.

- *Proposition 8: Where retailers have introduced a positively regarded novel and significant ambient scent, when consumers are exposed to the scent outside the environment, they will be able to associate the scent with the retailer.*

### ***Recalling places, events and emotions: the evocative power of smell***

The power of smell to strongly evoke memories associated with past experiences and the emotions that arise from them has been well established (e.g. Aggleton, 1999). Rachel S. Herz's work (cited in Hallaway, 1999) has demonstrated that scent is, of all the senses, most closely linked to remembered *emotion* rather than 'facts'. This connection is potentially the result of the reception of smell and its direct link to the limbic system, which, in turn, connects to the amygdala (the *emotion* centre) and the hippocampus (the *memory* centre) (Hallaway, 1999). This ability to trigger memory can also manifest itself over extended periods of many years (Aggleton, 1999; Draaisma, 2001).

This would suggest that a particular scent can provide a powerful and sustained cue, which, when associated with a pleasurable experience, offers a mechanism for recalling events, and, most importantly, emotions. These memories (both of event and emotion) also, therefore,

have the potential to affect the current mood-state of the person exposed to the smell (Baron, 1990); as well as to lead to mild changes in affective state (Bone and Ellen, 1999).

Mitchell (1994) contends that marketers have used smell in two basic ways. The first is associated with product attributes, product selection and trial. For example, the use of scents in personal care products aimed to induce a particular mood state – relaxation bubble bath and invigorating body splash. The second use of smell has been in an ambient manner (the smell of baking bread in supermarkets). This latter usage is not solely connected to the promotion of specific goods but can also be used to help create the desired atmosphere. Here, retailers have the intention of influencing customers' behavior by triggering memories and associations.

This second, ambient, usage of scent gives retailers the potential to use smell to trigger *memories* at two further levels. The first level is linked to the evocation of pleasant associations, based on smells such as that of brewing coffee and of baking bread. This transposal level refers to experiences *outside* the store that are brought into the retail environment by the memory that is triggered. These experiences are vested in situations external to the retail setting; they are partly connected to socialization in general, and to extraordinary events experienced throughout people's lives. The second level (which might be termed 'conjoined') relates to the recall of pleasant experiences (and emotions) of *shopping*, arising from a smell *specific* to a retailer. The second category therefore consists of a novel olfactory trigger produced – whether on purpose or not – by retailers, which is, in essence, unique to them, as are the memories triggered.

- *Proposition 9: Where retailers introduce a positively regarded generic ambient scent (eg bread baking, coffee roasting), such scents will primarily evoke memories in its customers that are not specific to that particular retail environment.*
- *Proposition 10: Where retailers introduce a positively regarded generic ambient scent (eg bread baking, coffee roasting), and the memory of a specific retailer is evoked in its customers, that remembered retailer will have been encountered in childhood, or associated with a memorable life event.*

This latter usage of scents draws on the ability of specific smells to evoke a 'sense of place'. This ability has an established history – for instance, Lohmann (1954) and Urry (1999) both discuss how the smell of particular towns and even individual streets has the potential to act as literal 'place-markers'. Perhaps even more significantly, Lohmann (1954) also highlights the importance of considering such smells as part of the town-planning process (although there is little evidence that such a plea has subsequently been heeded). This notion of manipulating ambient odor to act as a signifier of place thus has precedents (see, for example, Adams, 1998). What is less evident in the literature is that retail stores (or other micro locations) have actually used smell in this manner.

The potential distinction and ability of a smell to act as such a place-marker is, in part, bound to the relative 'uniqueness' of the smell itself. For example, the aroma of roses may help create a romantic and feminine atmosphere or image in a store; but that smell, in itself, may not provide a marker that is associated specifically with that store. In this respect, the scent does not necessarily evoke a memory of the store (or the emotions associated with the experience of shopping at the store); it rather triggers associations related to the concepts of romance and femininity. Whilst triggering emotions and memories of such concepts may be helpful, it does not necessarily provide a mechanism for creating a unique memory or the (hopefully) positive emotional memories associated with that particular retail place.

A distinction needs to be made between two discrete (but potentially linked) issues. When retailers use scent as a component in the creation of a desired atmosphere, they are not necessarily using scent to create a sense of place. They may simply be attempting to project an image that is bounded by the physicality of that space. For instance, the use of the scent of roses may support the creation of an image that emphasizes romance and femininity as described above. Romance and femininity are not themselves limited to the particular place in which the retailer uses them. Where the retailer uses a unique scent – which may well have the fragrance of roses as one of its components – they are potentially able to use this unique scent as a place-marker. Used in this way, the place-marking scent may maintain notions of

romance and femininity. Therefore, the uses of smell in the creation of atmosphere, and in the development of a sense of place, may overlap, in that a scent that is used to create a sense of place may also help create a particular atmosphere, and vice versa.

- *Proposition 11: Where a retailer introduces a positively regarded unique ambient scent, this will evoke memories of emotions and/or experiences linked to that specific retailer's outlet(s) in its customers.*
- *Proposition 12: Where a retailer introduces a positively regarded unique ambient scent, this will evoke memories of that specific retailer's outlet(s) atmosphere in its customers.*

In attempting to create a sense of place, and using smell as a significant part of this, there needs to be recognition that such a construction is the result of experience (both current and past). This fits well with the notion "that places attain meaning to the individual as a person as a result of constructed experiences (Tuan, 1974). Thus, the sense of place emerges from an interaction between the individual and the environment (Relph, 1976)" (Rowley and Slack, 1999). In this way, scent becomes a place-marker that is bound to an holistic impression (that subsumes the notion of atmosphere) of the retail environment.

- *Proposition 13: Where a retailer introduces a positively regarded unique ambient scent, this smell, as part of the holistic impression created by an environment, will act as a place-marker – creating individual meaning for its customers.*

This final proposition clearly connects with the first, and begins to draw together the threads introduced by examining recent olfactory research.

## **Conclusions and observations**

### ***Totality and congruity***

Ambient scent is but one of the many stimuli that lead consumers to develop an holistic impression of the store. This holistic impression of the store, or its atmosphere, links to the notion of retailer identity, the image formed by customers and their behavioural response in terms of approach and avoidance. The first two propositions in this article relate to these notions and the idea of congruence. Developing an improved understanding of how congruence might be perceived by customers – in terms, for example, of the relation of olfactory cues to visual stimuli – is a current challenge for retailers and researchers alike.

This serves to remind both retailers and researchers that, whilst an individual consideration of smell helps to illuminate its complex nature, it is the part that smell plays within the wider set of stimuli in creating an impression of the store that is paramount. This again helps to reinforce the importance of the management of the communication drawn from environmental stimuli and its potential to act as a focus for store image.

### ***Smell processing***

Smell can be perceived through pre-attentive processing; and this may lead to a situation where consumers respond to a smell without realizing. This presents both potential benefits and difficulties. For the retailer, the use of smell can achieve a (positive) response without distracting from attention given to other stimuli – for example, visual information drawn from merchandise displays. For the researcher, this phenomenon presents the fundamental problem of how to assess whether a response is related to a smell stimulus when the consumer is unaware that they are actually processing that stimulus.

Where retailers choose to introduce a smell that attracts *attentive* processing – i.e. one that is significant – then besides being congruent, if the odor is to contribute to increased responses from consumers, then it needs to be novel in some way. Propositions 3 to 7 relate to the ideas of novelty, significance, congruency, image and behavioral response. In essence, the central thrust is that, if retailers create a corporate scent that is congruent, significant and liked, it will probably result in positive behavioral outcomes that will strengthen retail brand image.

### **Olfaction memory**

Whilst the literature on the functioning of olfaction memory is not uniform in its treatment, there is a general sense that such memory is both powerful and evocative. This provides retailers with the possibility of a bonding mechanism between novel and significant ambient scents for use in retail environments and the recall of the retailer by the customer once outside the store. This notion is encapsulated in proposition 8. Research is required to fully understand the processes and timeframe for the creation of such a recall effect.

### **Smell and the evocation of place**

The functioning of scent memory provides retailers with a device for triggering memories of *emotions*. The power of generic scents to evoke particular memories is well attested, especially in relation to childhood and significant life events. Such issues are manifested in propositions 9 and 10.

However, there is far less evidence relating to unique or signature scents and their ability to generate memories of the events and emotions attached to a retail environment and its atmosphere; although there have been suggestions that smell can be used as a place-marker on a macro scale – that of the street or town. There would therefore appear to be considerable scope for retailers to create corporate scents that simulate specific memories of the emotions generated in their stores. Where such emotions are pleasant, this also facilitates a further development of the bond between retailer and consumer. This then gives retailers a potentially powerful point from which to develop *associations* with the retail brand and/or store. Propositions 11 and 12 begin to address these issues.

Finally, the creation of a more coherent set of consumer recollections and associations might be attainable by retailers if they are able to use a novel, significant scent as an integral element in their store design and identity. This rests on the notion of creating an holistic impression that can be linked to the creation of a 'sense of place'. Proposition 13 encapsulates these sentiments.

The inclusion of scent as a place-marker within the holistic management of retail identity and atmosphere has the potential to provide a point of differentiation. This helps retailers establish a clear, consistent and coherent brand identity that is communicated and vested in the store itself.

### **Acknowledgements**

The authors thank the three anonymous reviewers for their helpful and insightful comments, which have greatly assisted in the development of this paper. Our thanks are also extended to Stephen R. Ward for his assistance in proof-reading and editing this paper, as well as redrawing the figure.

### **References**

- Adams, P. 1998. Network typologies and virtual place. *Annals of the Association of American Geographers*, 88(1), 88-106.
- Aggleton, J.P. and Waskett, L. 1999. The ability of odours to serve as state-dependent cues for real-world memories: Can Viking smells aid the recall of Viking experiences? *British Journal of Psychology*, 90(1), 1-7.
- Annett, J.M. 1996. Olfactory memory: a case study in cognitive psychology. *The Journal of Psychology*, 130(3), 309-319.
- Areni, C. and Kim, D. 1994. The influence of in-store lighting on consumers' examination of merchandise in a wine store. *International Journal of Research in Marketing*, 11(2), 117-115.

- Baker, J., Parasuraman, D., Grewal, A. and Glenn, B.V. 2002. The influence of multiple store environment cues on perceived merchandise values and patronage intentions. *Journal of Marketing*, 66(April), 120-141.
- Baker, J., Parasuraman, D. and Grewal, A. 1994. The influence of store environment on quality inferences and store image. *Journal of the Academy of Marketing Science*, 22(4), 328-339.
- Baron, R.A. 1990. Environmentally-induced positive affect: its impact on self-efficacy, task performance, negotiation and conflict. *Journal of Applied Social Psychology*, 20(5), 368-384.
- Belk, R.W. 1975. Situational variables and consumer behaviour. *Journal of Consumer Research*, 2(December), 157-164.
- Bellizi, J., Crowley, A. and Hasty, R. 1983. The effect of color in store design. *Journal of Retailing*, 59(Spring), 21-45.
- Biswas, R.K. (Ed.). 2001. *Metropolis Now!* Wien: Springer Verlag.
- Bitner, M.J. 1992. Servicescapes: the impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(April), 57-71.
- Blackwell, L. 1995. Visual cues and their effects on odour assessment. *Nutrition and Food Science*, 5, 24-28.
- Bloch, P.H., Ridgway, N.M. and Dawson, A. 1994. The shopping mall as a consumer habitat. *Journal of Retailing*, 70(1), 23-42.
- Bone, P.F. and Ellen P.S. 1999. Scents in the marketplace: explaining a fraction of olfaction. *Journal of Retailing*, 75(2), 243-262.
- Chebat, J.-C., Chebat, C.G. and Vaillant, D. 2001. Environmental background music and in-store selling. *Journal of Business Research*, 54(2), 115-123.
- Crowded House (1993. Skin Feeling. *Together Alone*. Audio CD. Label: Capitol ASIN: B000002TME Catalogue Number: CDESTU2215.
- Davies, B.J. and Ward, P. 2002. *Managing Retail Consumption*. Chichester: John Wiley & Sons, Ltd.
- Donovan, R.J. and Rossiter, J.R. 1982. Store atmosphere: An environmental psychology approach. *Journal of Retailing*, 58(Spring), 34-57.
- Donovan, R.J., Rossiter, J.R., Marcolyn, G. and Nesdale, A. 1994. Store atmosphere and purchasing behaviour. *Journal of Retailing*, 70(3), 283-294.
- Doyle, S. and Broadbridge, A. 1999. Differentiation by design: the importance of retailer repositioning and differentiation. *International Journal of Retail and Distribution Management*, 27(2), 72-83.
- Draaisma, D. (2001) 'Geur en herinnering' [Smell and memory]. In: Draaisma, Douwe, *Waarom het leven sneller gaat als je ouder wordt [Why life is going faster when you get older]*. Groningen: Historische uitgeverij, pp. 37-50.
- Dube, L. and Morin, S. 2001. Background music pleasure and store evaluation intensity effects and psychological mechanisms. *Journal of Business Research*, 54(2), 107.
- Economist, 1998. The sweet smell of success. Science and Technology, *Economist*, 348(8084), 75.
- Gilbert, A.N. (Ed.) 1995. Compendium of Olfactory Research, Explorations in Aroma-Chology: Investigating the Sense of Smell and Human Response to Odors 1982-1994. Dubuque, IW: Kendall-Hunt Publishing Company.
- Gulas, C.S. and Bloch, P.H. 1995. Right under our noses: ambient scent and consumer responses. *Journal of Business Psychology*, 10(1), 87-98.
- Halloway, M. 1999. The ascent of scent. *Scientific American*, 99(281), 42.

- Krauel, K. and Pause, B.M. 2001. Pre-attentive odor processing. In Lorig, T.S. (Ed.) 2001. *Compendium of Olfactory Research, Explorations in Aroma-Chology: Investigating the Sense of Smell and Human Response to Odors 1995-2000*. Dubuque, IW: Kendall-Hunt Publishing Company.
- Kooijman, D. 2003. Shop-image and interaction; the use of senses in consumption space. In: McDonagh, D., Gyi, D., Hekkert, P. and van Erp, J. (Eds.) *Design and emotion*. London: Taylor & Francis.
- Lohmann, K. 1954. The scents of the cities. *American City & County (reprinted May 1999)*, 144(5), 54-55.
- Lorig, T.S. (Ed.) 2001. *Compendium of Olfactory Research, Explorations in Aroma-Chology: Investigating the Sense of Smell and Human Response to Odors 1995-2000*. Dubuque, IW: Kendall-Hunt Publishing Company.
- Lorig, T.S. 1989. Human EEG and odor response. *Progress in Neurobiology*, 33, 387-398.
- North, A.C. and Hargreaves, D.J. 1999. The influence of in-store music on wine selections. *Journal of Applied Psychology*, 84(2), 271-276.
- Mattila, A.S. and Wirtz, J. 2001. Congruency of scent and music as a driver of in-store evaluations and behavior. *Journal of Retailing*, 77(2), 273.
- McDonagh, D., Gyi, D., Hekkert, P. and van Erp, J. (Eds.). 2003. *Design and emotion*. London: Taylor & Francis.
- McPherson, A. and Moran, A. 1994. The significance of fragrance and olfactory acuity for consumer household market. *Journal of Consumer Studies and Home Economics*, 18, 239-51.
- Mehrabian, A. and Russell, J. A. 1974. *An Approach to Environmental Psychology*. Cambridge, Mass.: The MIT Press.
- Merrilees, B. and Miller, D. 2001. Superstore interactivity: a new self-service paradigm of retail service? *International Journal of Retail & Distribution Management*, 29: 8, 379-389.
- Milliman, R.E. 1982. The effect of background music upon the shopping behaviour of supermarket patrons. *Journal of Marketing*, 46, 86-91.
- Milliman, R.E. 1986. The effect of background music on the behaviour of restaurant patrons. *Journal of Consumer Research*, 13, 286-289.
- Mitchell, D.J. 1994. For the smell of it all: functions and effects of olfaction in consumer behavior. *Advances in Consumer Research*, 21(1), 330.
- Mitchell, D.J.; Kahn, B.E. and Knasko, S.C. 1995. There's something in the air: effects of congruent or incongruent ambient odor on consumer decision making. *Journal of Consumer Research*, 22(2), 229-238.
- Mostert, M. 1998. *Oraliteit [Orality]*. Amsterdam: Amsterdam University Press.
- Relph, E. 1976. *Place and placelessness*. London: Pion.
- Rowley, J. and Slack, F. 1999. The retail experience in airport departure lounges: reaching for timelessness and placelessness. *International Marketing Review*, 16(4/5), 363-376.
- Spangenberg, E.R., Crowley, A.E. and Henderson, P.W. 1996. Improving the store environment: do olfactory cues affect evaluations and behaviors? *Journal of Marketing*, 60(2), 67-80.
- Spies, K. and Hesse, F. 1997. Store atmosphere, mood and purchasing behavior. *International Journal of Research in Marketing*, 14(1), 1-17.
- Strugnell, C. and Jones, L. 1999. Customer perceptions and opinions of fragrances in household products. *Nutrition and Food Science*, 99(4), 21-24.
- Süskind, P. 1989. *Perfume*. London: Penguin Books (first publication: *Das Parfum, die Geschichte eines Mörders*, 1985).

Tai, S.H.C. and Fung, A.M.C. 1997. Application of an environmental psychology model to in-store buying behaviour. *The International Review of Retail, Distribution and Consumer Research*, 7(4), 311-337.

Tuan, Y.-F. 1974. *Topophilia*. Prentice Hall: London.

Turley, L. and Milliman, R. 2000. Atmospheric effects on shopping behavior: a review of the experimental evidence. *Journal of Business Research*, 44(2), 193-.211.

Urry, J. 1999. 'Sensing the city'. In: Judd, D.R., and Fainstein S.S. (Eds.) *The Tourist City*. New Haven, CT: Yale University Press, 71-88.

Vroon, P. 1995. *Tranen van de krokodil. Over de snelle evolutie van onze hersenen* [The tears of the crocodile. On the fast evolution of our brains]. Amsterdam: Ambo (first edition: 1989).

Wakefield, K.L. and Blodgett, G. 1996. The effect of the servicescape on customers' behavioural intentions in leisure service settings. *Journal of Services Marketing*, 10:6, 45-61.