

The Use of Scents to Influence Consumers: The Sense of Using Scents to Make Cents

Kevin D. Bradford
Debra M. Desrochers

ABSTRACT. Since the sense of smell cannot be turned off and it prompts immediate, emotional responses, marketers are becoming aware of its usefulness in communicating with consumers. Consequently, over the last few years consumers have been increasingly influenced by ambient scents, which are defined as general odors that do not emanate from a product but are present as part of the retail environment. The goal of this article is to create awareness of the ethical issues in the scent marketing industry. In particular, we illuminate areas of concern regarding the use of scents to persuade, and its potential to make consumers vulnerable to marketing communications. Since this is a new frontier for marketers, we begin with an explanation of what makes the sense of smell different from other senses. We then provide a description of how scents are used in marketing, past research on the power of scents, and the theoretical basis for, and uses of scents to influence consumers. This brings us to the discussion of the ethical considerations regarding the use of this sense. We close with several future research ideas that would provide more evidence of how the sense of smell can, and should be used by marketers.

KEY WORDS: ambient scent, attitudes, behaviors, influence, marketing

Purpose

Over the last few years consumers have been increasingly influenced by scents as marketers become more aware of the potential usefulness of this sense. On average, each person breathes 20,000 times a day and with each breath comes a chance to pitch a product because the sense of smell cannot be turned off (Stevens, 2006). As recently as 2007, scent marketing was billed as one of the top ten trends to watch (Thomaselli, 2006). Retailers, hotels, and restaurants

are investing in the hope that distinctive, carefully considered smells will help amplify consumer spending, attract customers, and create memorable brands (Dowdey, 2008). As a result, the scent marketing industry is a \$100-million business and is predicted to reach up to \$1 billion within the next 7–8 years (Ravn, 2007).

The goal of this article is to create awareness of the ethical issues in the scent marketing industry. In particular, we elucidate areas of concern regarding the use and development of scents to persuade and make consumers vulnerable to marketing communications. To do this we begin with a description of what makes the sense of smell different from other senses. This is followed by a description of how scents are used in marketing, past research on the influences of scents, the theoretical basis for, and uses of scents to influence consumers. In closing we discuss the ethical considerations of the scent industry and areas of future research.

Overview of using the sense of smell as a marketing opportunity

Smell is a wide-open and fertile ground for marketers. According to the Sense of Smell Institute, the average human being is able to recognize approximately 10,000 different odors. Though there is success in this area to date, research that investigates odor's ability to affect human behavior is just in the beginning stages.¹ Despite the lack of evidence, the concept of employing scents to influence consumer actions is becoming an increasingly attractive tool for marketers.

Marketers interested in using scents rely on two physiological conditions which strongly impact the cognitive psychologically based premises of associative

learning and emotional processing. First, smell is one of our most primal and deeply rooted senses and functions as our chemical alert system. It is hardwired to perceive whether the molecules around our bodies are beneficial or dangerous, a determination of fundamental importance to the survival of all forms of life (Zaltman, 2003). When a person smells something, the odor receptors produce an immediate, instinctive reaction (Vlahos, 2007; Zaltman, 2003). “With all of the other senses, you think before you respond, but with scent, your brain responds before you think,” says Pam Scholder Ellen, a Georgia State University marketing professor (Vlahos, 2007). Thus the sense of smell is of interest to marketers because of its potential to create uncensored reactions to marketing stimuli.

Second, the sense of smell is considered to be the most closely related to emotional reactions. The olfactory bulb is directly connected to the limbic system in the brain, which is the system related to immediate emotion in humans (Wilkie, 1995). 75% of emotions are generated by smell (Bell and Bell, 2007). Consequently, smell represents a direct line to feelings of happiness and hunger and is a sensory bandwidth that cannot be turned off (Vlahos, 2007; Wilkie, 1995). Thus, from a marketer’s perspective, smell has

an instantaneous good or bad effect on our emotional state which, as some research has shown, ultimately affects our shopping and spending behavior.

Thus, the neurological substrates of olfaction are especially geared for associative learning and emotional processing. Marketers can link a scent with an unconditioned stimulus eliciting the desired response and eventually prompting a conditioned response from consumers (Herz, 2002). Further, since the olfactory bulbs are part of the limbic system and directly connect to the structures that process emotion (the amygdala) they also strongly related to associative learning (the hippocampus) (Herz, 2002). No other sensory system has this type of intimate link between emotion and associative learning (Herz, 2002). Marketers are becoming increasingly knowledgeable about using scent to elicit the desired affect in their retail establishments.

How scents are used in marketing

Figure 1 shows how scents can be and are used in marketing. First, on the left is “marketer scent.” As defined in the figure, these scents are used by a

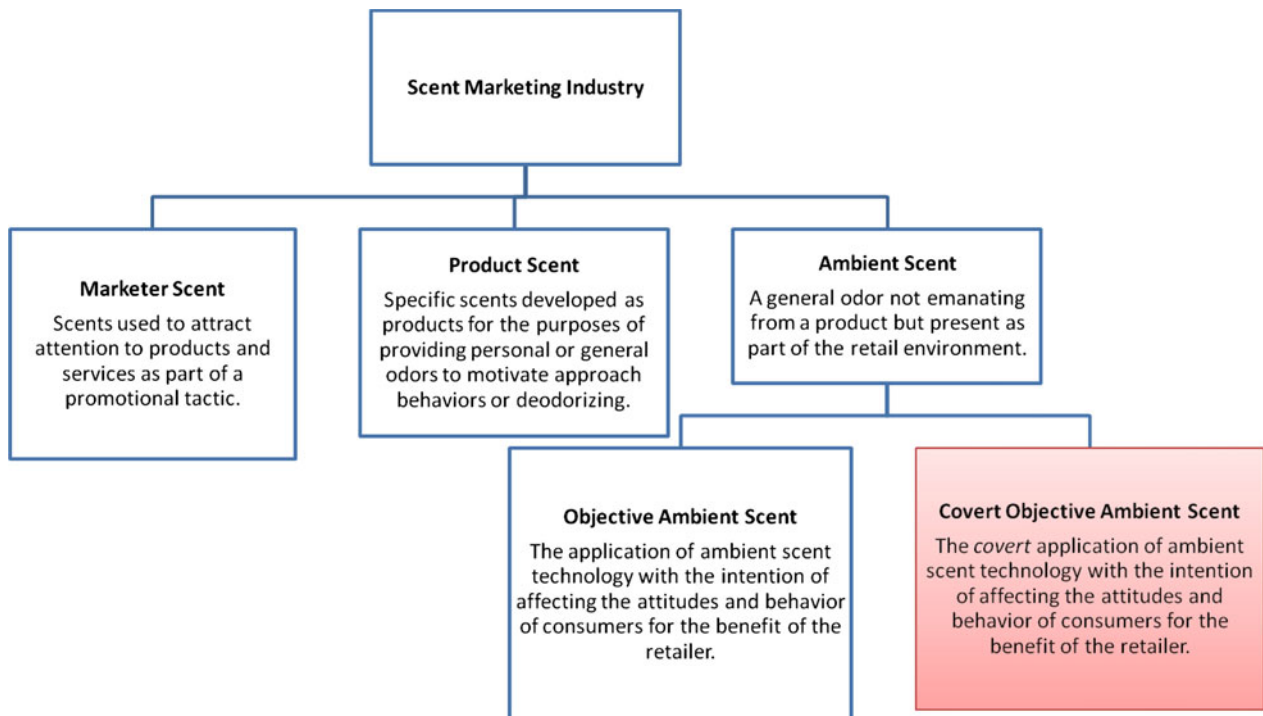


Figure 1. Framework for using scents in marketing.

marketer as a promotional tactic. Many common examples include the new car smell at a car dealership or the smell of baking in a home that is for sale. Other recent examples include Verizon introducing its Chocolate cell phone last summer with the seductive aroma of chocolate wafting through its stores, ScentAndrea, a scent marketing company in Santa Barbara, putting chocolate scent strips on 33 vending machines, and, in 2005, *Exxon On The Run* convenience stores highlighting a new brewing system with coffee scents from ScentAir, a scent marketing system in Charlotte (Ravn, 2007).

The next type is “product scent.” In this case, the scent is the product. This category includes perfumes, air fresheners, and similar items. In addition, consumers can purchase small scent-dispensing machines to disperse favorable scents in their homes, cars, or offices to disguise odors or to create a preferred scent (Duncan, 2007).

Ambient scent, on the right side of Figure 1, is a general odor which does not emanate from a product but is present as part of the retail environment. Within this category we define two types of ambient scents. The first is objective ambient scent, which we define as the application of ambient scent technology with the intention of affecting the attitudes and behavior of consumers for the benefit of the retailer.

The scent marketing industry and the research that supports it claim many interesting results for marketers. One study purports that 84% of people were more likely to buy [shoes], or liked them more, when in a scented room. In the same study, many of the subjects reported they would pay 10–15% more for the product (Lindstrom, 2005). In a Las Vegas casino, a pleasant ambient scent in an area of the casino was related to 45% more revenue than comparable non-scented slot machine areas (Hirsh, 1995). In another study, a sweet citrus ambient scent nearly doubled the average total purchases in a retail setting, from \$55 to \$90 per customer. The Scent Marketing Institute lists its sixth top scent as “leather and cedar” because of its ability to motivate consumers to buy expensive furniture, its seventh top scent as “fresh baked goods” because of its positive association with the consumer’s propensity to purchase a home, and its eighth top scent as “tailored floral and citrus” scents because of its positive association with consumers browsing longer and spending more. The promise that objective

ambient scent holds has prompted unchecked excitement from marketers and media purporting claims and bravado such as, “One whiff of a scent can make a person laugh or cry, and exclaim with delight or disgust” (Ravn, 2007). One scent marketing firm even offers money-back guarantees, promising that any promotion using its scented products will increase sales enough to cover the cost of the promotion (Ravn, 2007).

Overview of research on objective ambient scent

Though excitement for, and interest in the use of objective ambient scents are high, the research is scant, though recently gaining steam (i.e., Bone and Ellen, 1999; Gulas and Bloch, 1995; Turley and Milliman, 2000). This section highlights the research findings across several areas.

Attention, memory, and mood

One stream of research on ambient scent investigates its effects on memory and attention. Here, research confirms that our sense of smell is the strongest sense in relation to memory, finding that we are 100 times more likely to remember something that we smell than something that we see, hear, or touch (Vlahos, 2007). Further, Herz (1998) published a study in which she found that all our senses evoke equally accurate memories, but scents evoke more emotional ones. Zoladz and Raudenbush (2005) led a charge to examine the effects of ambient scent on augmenting cognitive performance. They found that both cinnamon and peppermint scents improved participants’ scores on tasks related to attentional processes, virtual recognition memory, working memory, and visual-motor response speed. In addition, participants rated their mood and level of vigor higher, and their level of fatigue lower, in the peppermint condition.

Objective ambient scents in the workplace

Research also supports ambient scent affecting performance in the workplace. When exposed to a

pleasant scent people are more creative in problem solving versus when they are exposed to an unpleasant scent (Herz, 2002). It was reported that a large Japanese firm reduced the error rate of key-punch operators by almost 50% by exposing them to a lemon scent and almost 80% after exposure to lavender (Toth, 1989). A growing body of literature shows that prosocial behavior and productivity are enhanced in the presence of pleasant ambient scents (Baron, 1997; Herz, 2002). People who work in the presence of a pleasant scent also reported higher self-efficacy, set higher goals, and were more likely to employ efficient work strategies than participants who worked in a no-scent condition (Herz, 2002). Pleasant ambient scents enhance vigilance during tedious tasks and improve performance on anagram and word completion tests (Herz, 2002). Raudenbush (2005) summarizes several studies on the influence of olfaction on human behaviors. One study, conducted by Barker et al. (2003), assessed whether such increases in cognitive performance through peppermint scent administration impact actual office-work clerical tasks. Participants completed three clerical tests – typing, memorization, and alphabetization, in either a non-scented or a peppermint-scented condition. A significant difference was found in the gross speed, net speed, and accuracy on the typing task, with peppermint scent associated with increased performance. Alphabetization ability also improved significantly in the peppermint scent condition. In another study, Kliauga et al. (1996) asked participants to proofread pages of text containing misspelled words. The task was to identify the misspelled words while various scents were presented. Participants performed significantly better when a fragrance was added to the room, with lavender odor producing the greatest effects in females, and peppermint producing the greatest effects in males.

Objective ambient scents and retail performance

Research on objective ambient scents is also directed toward its ability to affect retailer performance. Several studies show that the congruity between scent and other environmental factors (such as products sold and marketing cues) has positive effects on evaluation, time spent in retail stores, and money

spent. For example, research found positive main effects for scent and music on shopping behavior and store evaluation (Mattila and Wirtz, 2001; Spangenberg et al., 2005). Positive interaction effects were found on shopping behavior, pleasure, and satisfaction when the type of scent (low or high arousal) and music (low or high arousal) were congruent with each other, i.e., when both the scent and music were either low arousal or high arousal. Spangenberg et al. (2005) also found that when the music and the scent were congruent (Christmas music and Christmas scents), this led to higher evaluations of the retail environment. These results suggest that customer satisfaction can be increased through thoughtful manipulation of ambient stimuli.

Mitchell et al. (1995) studied the congruity of an ambient odor and its role in mediating memory processes. They looked specifically at the use of congruent and incongruent scents in product decision-making tasks, where participants selected chocolate assortments or floral arrangements in environments that were scented with either chocolate or floral odorants, or remained unscented. The congruent scent condition resulted in more time spent in decision-making and increased distribution of decisions across product choice groups in each product category. Further research in marketing contexts and congruity finds that ambient scents present during brand evaluations lead to greater participant attention to the brand stimuli, greater brand recall, and brand recognition accuracy (Morrin and Ratneshwar, 2000).

While most researchers investigated the positive effects of congruence, Ellen and Bone (1998) suggest that the negative effects of incongruence seem to be what really matter. Adding the scent of suntan lotion might be a plus for a swimsuit promotion, but adding the scent of pumpkin pie would probably be a much bigger minus. Even though this research highlights the negative effects of incongruence, it reinforces the power of objective ambient scents.

Objective ambient scents and individual differences

Other marketing research explores ambient scents effect on individual differences. For instance, Spangenberg et al. (2005) found that gender-scent congruity makes a difference. Shoppers in a clothing store

scented either with rose maroc, previously determined to appeal to males, or vanilla, previously determined to appeal to females had a positive impact on that gender. Each gender evaluated the store and its merchandise more favorably and spent about 50% more time there, bought almost twice as many items and spent more than twice as much money. Scents can differentially affect age cohorts also. In one soon-to-be-published study, a team led by Jean-Charles Chebat of HEC of Montreal found that shoppers younger than 35 spent more in a suburban mall when it had a pleasant ambient scent than when it didn't. But this was not true for older shoppers – possibly because the sense of smell declines with age. Scent is also determined to affect the type of shopper as well. A 2005 study examined the effect of a pleasant ambient scent on two kinds of shoppers in a suburban mall: impulsive (those who made unplanned purchases) and contemplative (those who didn't). According to the shoppers' own reports, the contemplative ones spent more money in the presence of scent, while impulsive ones spent less (see Ravn, 2007).

Theoretical bases for the influence of objective ambient scent

The most common theoretical basis for studying the effects of scent on the shopping environment is drawn from environmental psychology which employs the stimulus–organism–response (S–O–R) paradigm. The S–O–R paradigm posits that the

environment is a stimulus (S) containing cues that combine to affect people's internal evaluations (O), which in turn create approach–avoidance responses (R) (e.g., Craik, 1973; Mehrabian and Russell, 1974; Russell and Pratt, 1980; Stokols, 1978). Approach behaviors include all positive behaviors that might be directed at the environment; for example, a desire to remain in a store and explore its offerings could be construed as an approach response. Avoidance behaviors reflect contrasting responses; that is, a desire to leave a store or not to browse represents avoidance behavior. Figure 2 was adapted from the model by Gulas and Bloch (1995) and provides the model for how ambient scents influence approach–avoidance behaviors. In the beginning, the ability to recognize a scent is dependent on its acuity and, in the end, the ultimate response is derived from an affective response. As discussed in the previously mentioned research, the affective response may be moderated by how well the scent meshes with its environment, the age and gender of the individual, and other atmospheric elements.

One key component of this model is that it assumes that the presences of the objective ambient scents can be detected by the consumer. However, it should be recognized that detecting the scent in the environment and understanding that its presence in the environment is to influence the consumer into behaviors that fulfill retailer objectives are not the same.

The perception process plays an important role in how consumers respond to scents when they are

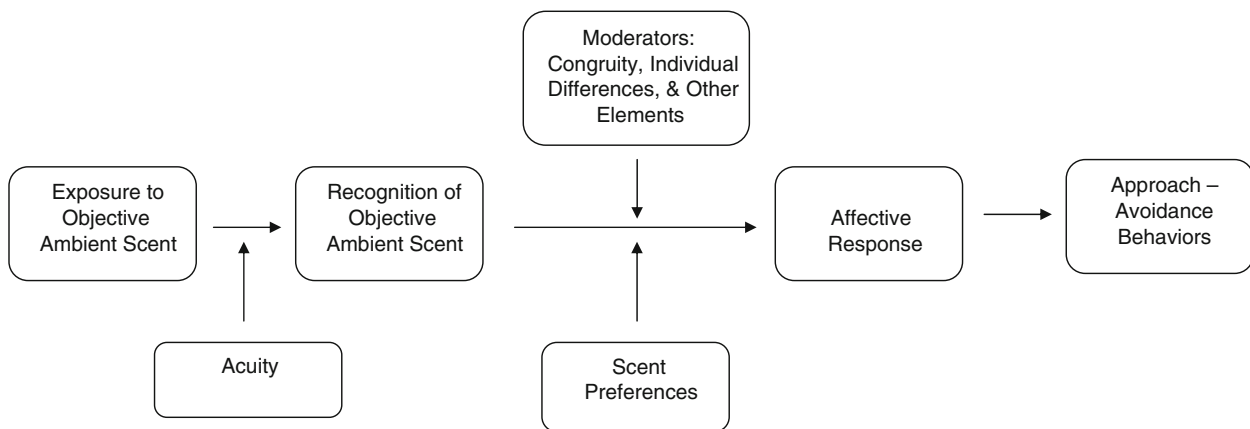


Figure 2. Summary of research regarding objective ambient scents. Adapted from Gulas and Bloch (1995).

used by marketers. Perception refers to how consumers are exposed to, attend to, and comprehend stimuli in the environment (Mowen and Minor, 1998). As shown in Figure 3, the perceptual process has several steps. First, the person is exposed to the ambient scent. In the second step, the person senses the scent. When organizing the scent, the person either assimilates it into existing knowledge or accommodates it as new knowledge or information. Finally, an approach or avoidance behavior results for the consumer. In the case of objective ambient scents, the consumer may not interpret the scent as a persuasion attempt at the sensing step. Here the consumer can detect the scent but does not interpret the scent as marketing stimuli which produces a consumer reaction or an influence attempt (see dotted line in Figure 3 above the level of conscious awareness). The consumer does not code, organize, or assimilate scent properly because of their lack of awareness of scent's ability to influence attitudes or behavior toward retailer objectives.

Typically, consumers develop and use perceptual defenses to manage their cognitive capacities so they are not overwhelmed by stimuli in the marketplace. One defensive mechanism, perceptual selection, is a principle which posits that because the brain's capacity to process is limited, people must be

selective regarding what they attend to. Thus, to avoid a capacity overload, consumers only attend to a small portion of the stimuli to which they are exposed. Some obvious and deliberate actions are using pop-up blockers when surfing the Internet or skipping ads when watching taped TV programs. Another mechanism, perceptual vigilance, posits that consumers are more likely to attend to stimuli that are most related to their current needs and disregard other stimuli (Buck, 1966). If the consumer attends to marketing stimuli, the consumer's personal coping skills will reflect their learned responses to persuasion attempts (Freistad and Wright, 1994). Thus, as shown in Figure 3 in the upper dotted line, for objective ambient scents, the consumers cannot engage their perceptual or persuasion defenses because they are not aware of the influence attempt. Consequently, the consumers cannot organize and react to the scent as they would to any other marketing communication.

Objective ambient scents arguably violate information norms in market exchange (Freistad and Wright, 1994). Marketing exchanges require both the marketer and the consumer to possess agent (from whom the persuasion attempt comes from, the advertiser or manufacturer), product (what product is being sold), and persuasion (how persuasion occurs and what tactics are used or are effective) knowledge

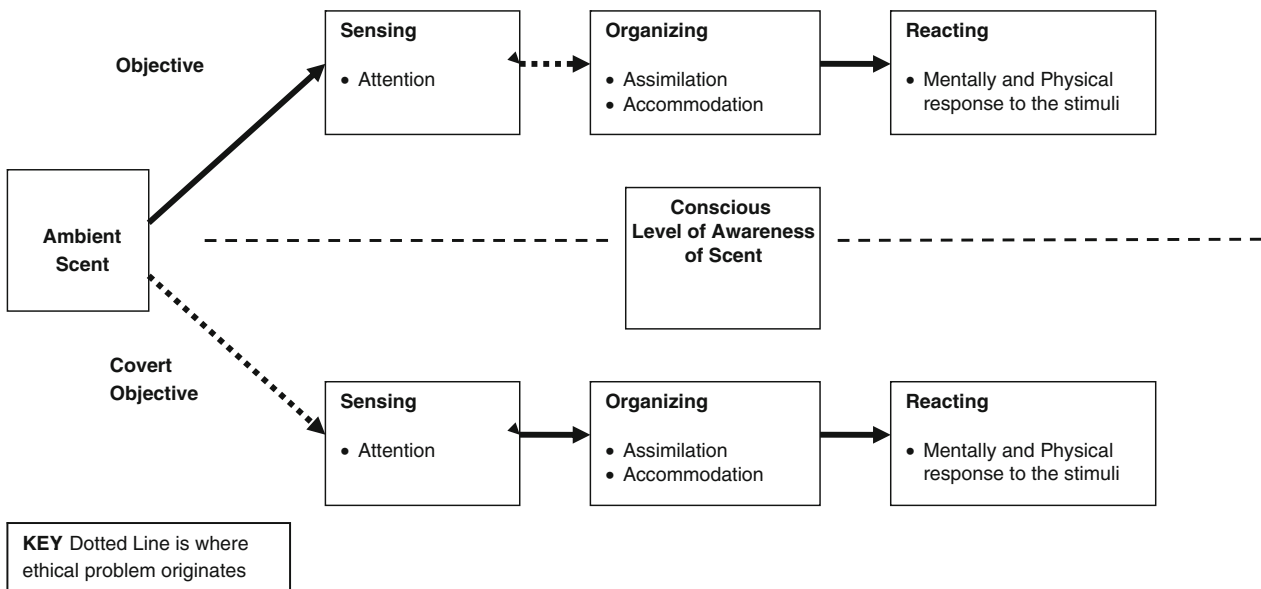


Figure 3. How objective ambient scents interact with the perceptual process.

(Freistad and Wright, 1994; Obermiller et al., 2005). In exchanges involving objective ambient scents, the consumer does not have full persuasion knowledge and thus is not equipped to willingly consider the agent's offerings (Obermiller et al., 2005).

A special case: covert objective ambient scent

An even less investigated subset of ambient scent, covert objective ambient scent (COAS) is similar to an objective ambient scent in that it does not emanate from a particular object, and it is purposeful in nature (see Figure 1). However, and most importantly, it is *covert*, which means not openly acknowledged or displayed but not necessarily requiring that something is intentionally hidden (Martin and Smith, 2008). COASs can be administered in a manner that the consumer cannot detect the scent. The key factor that makes COAS different from an objective ambient scent is that it is developed to motivate an action or influence consumer behavior below the consumer's absolute threshold of consciousness. Therefore, the sensing stage in Figure 3 is (the lower dotted line), again, violated because the consumer does not even know that the scent is present and, accordingly, does not interpret this as a persuasion attempt and cannot engage in any perceptual defenses. It is important to note that research shows that covert ambient scents can affect attitude object likability ratings even though the subject is not consciously aware of the introduction of scent to the environment (Li et al., 2007).

The use of COAS is not without risk. If discovered, marketers' covert attempts to persuade consumers risk being poorly received by consumers, causing them to react negatively to the loss of freedom to make their own choices. A consumer's negative reaction to the loss of freedom to make a choice is called "psychological reactance" (Brehm, 1966). COAS intrudes on the consumers' senses and efforts without their knowledge, consent, or awareness, which violates consumer privacy privileges (Martin and Smith, 2008). Once consumers perceive they are being manipulated into making a certain choice in a retail store, they not only think less of the store they are visiting, but also think more negatively of the source of the persuasion attempt and of themselves upon learning that they were

deceived or duped (which could lower self-esteem) (i.e., Martin and Smith, 2008).

Therefore, for the retailer, the risks associated with the use of COAS are great. There could be longer term adverse consequences such as denigration of the brand, heightened distrust of business in general, and marketing, in particular, and the potential social harm of seemingly sincere human interactions proving to be inauthentic.

Some key ethical implications in the use of objective ambient scents

Objective ambient scents and COASs entail the development and application of ambient scent technology with the intention of affecting the attitudes and behavior of consumers for the benefit of the retailer. Therefore, the development, distribution, and administration channel for this industry (from developer to consumer) is composed of at least four main components: the ambient scent researcher, the ambient scent marketer, the retailer, and the consumer, as shown in Figure 4. Generally, the scent researcher develops scents that affect the behaviors and attitudes of consumers. The scent marketer generates demand, cultivates the market, and distributes scents to retail customers. The retailer is the customer market in the scent industry. The retailer administers the COAS and the objective ambient

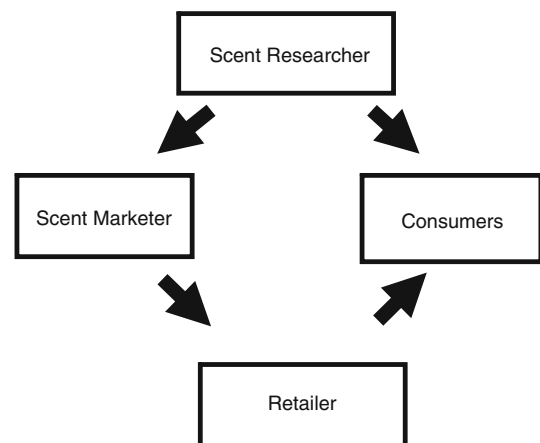


Figure 4. The four components of the scent industry regarding objective ambient scents and COASs.

TABLE I
Summary of the ethical considerations for objective ambient scents and COASs

Key linkages in the development and distribution of objective ambient scents to the consumers	Key ethical considerations
Retailers to consumers	Retailers should not influence consumer behavior without consumers having the opportunity to recognize and acknowledge the persuasion attempt
Scent researchers to consumers	Scent researchers should not pursue methods to covertly persuade consumers to purchase products using ambient scents
Scent researchers to scent marketers	Scent researchers should not knowingly provide marketing stimuli to scent marketers that persuade consumers without their knowledge
Scent marketers to retailers	Scent marketers should not make claims regarding their scent products that are unsubstantiated and may lead retailers to purchase products that do not provide the promoted results Scent marketers should not provide marketing stimuli to retailers that persuade consumers without their knowledge

scent into the retail environment to inspire certain consumer reactions.

Table I provides information on the key channel linkages within this industry and some of the key ethical implications relative to the use of an objective ambient scent and COAS. The following is a discussion of these issues.

Retailers to consumers

Retailers have the right to compete for consumers to achieve their business goals. Retailers use tactics such as COAS and objective ambient scents to gain advantages in competitive markets. Those retailers that use these tactics are only considering the advantages to be gained by their use and not the disadvantages that may be imposed on their consumers.

Retailers should not influence consumer behavior without consumers having the opportunity to acknowledge or defend against the persuasion attempt. Objective ambient scent usage allows for the possibility that even if consumers are aware of the scent, they may not interpret it as a persuasion attempt, not allowing the opportunity to use the perception processes to appropriately interpret and respond to the attempt (see upper dotted line in

Figure 3). COAS, by design, overcomes the consumer’s perceptual defenses by usurping the conscious engagement in the sensing step of the perceptual process, prompting a response by the consumer who has not knowingly engaged in the previous perceptual process stages (see lower dotted line in Figure 3).

Many argue that the retailer should be able to use legal marketing techniques that allow the business to prosper. Additionally, the administration of ambient scents is not illegal and that visitors to a retail establishment are aware that the potential for conversion to a customer exists. Further, influencing consumers to purchase products is legal. Thus, according to some, there is no ethical consideration even though consumers are not aware they are being influenced. However, the prohibition on deceptive practices and the protection of vulnerable consumers have long been part of our competitive environment. In 1974, the Federal Communications Commission issued a notice, 44 FCC 2d 1016, 1017 (1974), on this topic stating that the use of any technique where an attempt is made to convey information to the viewer by transmitting messages below the threshold level of normal awareness is contrary to the public interest, whether effective or not, because such broadcasts clearly are intended to be deceptive. Thus, there is legal and ethical precedent.

Scent researcher to scent marketer

It appears that some scent researchers study consumers for the benefit of scent marketers and retailers and are aware that, ultimately, the findings may lead to the creation of significant advantages over consumers without their consent. These advantages over consumers can be construed as too significant for consumers to overcome and thus represent an ethical predicament for scent researchers. Thus, scent researchers should not pursue the development of a marketing stimulus (COAS or objective ambient scent) that influences consumers to purchase products without the consumer understanding that they are being influenced.

An argument that supports the continuation of research on ambient scents is after repeated exposures to a particular tactic, consumers develop knowledge of the persuasion attempt (Freistad and Wright, 1994). Therefore, it is possible that objective ambient scent advantages over consumers may be only temporary. It is possible that consumers will learn why various smells are used so that when they are encountered they can react in a more informed manner. However, this may compel scent researchers to continue their pursuit of scent technology to remain effective influencers of consumer behavior.

Scent marketer to retailer

Marketers of COAS have the right to use lawful tactics to promote their products and to pursue their business goals and objectives. Increasingly, scent marketers understand the extent of competition in the retail marketplace, making retailers particularly eager to adopt mechanisms that help them achieve their business goals.² To succeed in the retail industry, firms are employing more and more novel marketing practices (Martin and Smith, 2008). One such practice, called “retail atmospherics,” focuses on designing store environments to be more attractive, more approachable, and more welcoming than the competition (Perrault et al., 2008). Research on atmospherics concludes that the effect of the retail environment on consumer behavior is both strong and robust and increases the likelihood of eliciting desired behaviors from shoppers (i.e., Bitner, 1990; Mehrabian and Russell, 1974; Michon et al., 2005;

Swinyard, 1993; Turley and Milliman, 2000). The bottom line is that the use of atmospheric variables is frequent and acceptable and that effective management of the store environment can yield a competitive advantage (Spangenberg et al., 1996).

The potential of scent to affect retail competitiveness is clear and the idea is exciting. Therefore, scent is increasing in popularity as an avenue for competitive advantage in store atmospherics. Scent marketers, perceiving the competitiveness of the market, are promoting scent solutions with unsubstantiated claims of success for generalized application. For example, one prominent scent marketer claims that scent has the ability to be “everything you want your products to be: enjoyable, emotional, evocative, elusive, inviting, irresistible, mouthwatering, suggestible and memorable.”³ In other cases, scent marketers are promoting scent solutions that drastically increase sales and profits. It appears that the scent marketer has overstepped the boundaries of scent’s capability in their promotions.

In spite of such claims, the business effects of scent are unsubstantiated and not generalizable. Scent research has not reached the level where these types of claims can be made. There are promotional claims from the scent marketing industry that certain ambient scents provoke consumers to purchase specific products such as shoes or furniture. Scent marketers should not make unproven claims that lead retailers to purchase products that do not provide the promoted results. Additionally, in accordance with our previous argument, scent marketers should not provide products (covert objective or objective ambient scents) to retailers that influence consumers without their knowledge.

Scent researchers to consumers

Researchers of ambient scents have the right to pursue the development of knowledge. The topic is interesting, legal, and the potential benefits to the researcher create considerable incentive. However, the central premise of an objective ambient scent, whether it is covert or not, is that consumers will be influenced to meet the goal of the retailer, even if they are not aware of this intent. The potential harm to consumers is increased when investigating specific scent stimuli that cannot be detected (COAS). Not

only does the research have unethical implications, but the use of findings of this research provides opportunities for the unethical use of scent for financial gain. The creation and application of a COAS and an objective ambient scent that cause purchasing behaviors will create significant advantages for retailers over consumers in the retail environment. Thus, scent researchers should not pursue the development covert objective or objective ambient scents.

Impact on stakeholders

Some may argue that there are positive consequences resulting from the use of a COAS and objective ambient scent. For example, some of the research on the workplace performance certainly suggests that the well-being of the employee may improve as the workplace itself improves. However, we want to raise the possibility that, despite the good intentions, this is still manipulation of a human being. In the long run, initiatives that begin as effi-

ciency improvements may evolve into abuse of the employees.

Quandaries such as this suggest a need for a trade-off analysis. A method for isolating the effects of marketing tactics was developed by Duke et al. (1993) for evaluating the use of fear appeals. These researchers developed the ethical effects-reasoning matrix (ERM), which is a framework for categorizing relevant consequences from the view of interested publics. One dimension of the framework is the stakeholders, which includes society, the organization, and the individual. With respect to each stakeholder, there may be consequential benefits and detriments. Table II uses this framework to summarize a few considerations that we think are of particular concern should the use of an objective ambient scent and a COAS persist. As noted in this table, some of the consequences may be beneficial to that stakeholder, including society at large, while others may represent detriments for the stakeholder. For purposes of this table the organization includes the scent researchers, scent marketers, and the

TABLE II
Stakeholder consequences and COAS

Stakeholder		Possible consequences		
Society	Benefits	Increased potential prosperity for retailers, scent marketers & researchers	Increases marketer sensitivity to consumer senses and well-being	
	Detriments	Reduces consumer sensitivity to other marketing tactics and persuasion attempts	Last frontier of manipulating human emotion	The use of scents may be implemented in other situations to manipulate behaviors
Organization	Benefits	Allows for greater competitive advantage	Reduce risk of losing a customer to a competitor	
	Detriments	Potential risk of alienating customers who feel manipulated	Risk of introducing an undesirable or incongruent scent	
Individual	Benefits	May engage in an experience that may not otherwise occur	May experience an improvement in mood	
	Detriments	May be influenced to engage in a behavior that would not otherwise be considered	May be influenced to change an attitude that would not otherwise occur	

retailers. The individual is the consumer in the retail environment. While this table is not intended to be exhaustive, it reinforces the notion that while serious concerns may surround the use of an objective ambient scent and a COAS, careful consideration requires recognition of the fact that scents can have positive effects on individuals that generate positive results for other stakeholders.

Future research

The increasing popularity of objective ambient scents, scent marketing, and the advent of COAS provides a fertile ground for future inquiry. One project that holds promise is the exploration of scent marketers' claims of scent technology's success with consumers. Investigation could categorize the types and frequency of promotional claims and relate these claims with actual business results and success. Further, scent marketer claims could be investigated for their generalizability to a variety of retail operations and formats.

Another area of research in ambient scents could provide an up-to-date literature and research review on the progress of objective and COASs in the knowledge and product development arena. As mentioned before, this is an intriguing topic and certainly there are many interested parties. Therefore, providing the current state of the academic literature is a much needed contribution.

Consumer reaction to the use of a COAS or an objective ambient scent also promises to make an important contribution. While the ethicality of this scent technology cannot be disputed, to provide legal balance in the marketplace, research needs to transpire. Thus, a good starting point for this would be to provide more studies of consumer reactions to the presence of a COAS and an objective ambient scent.

Importantly, if an objective ambient scent or a COAS can be used to elicit and motivate purchasing behaviors perhaps they can be used to motivate safe and theft-free environments. Using ambient scents to decrease employee theft and consumer theft could have important positive implications for society and the marketplace. While this is inconsistent with the views of this article, we recognize that some may feel this is an area of legitimate future research and is a

worthy pursuit that would provide benefits to science and the marketplace.

Concluding comment

The past success of using scents to inspire certain behaviors is a growing trend in marketing and a promising industry that is experiencing increasing success and innovation. In addition, researchers, including academic researchers, are calling for more attention to this tactic in order to gain a better understanding of how it works, its potential applications, and to discover new opportunities. However, smell is a sense that we cannot suspend, it is engaged whether or not we are aware of it, and it is directly tied to our memory and emotions. While most of the research is in the area of ambient scents, the increasing use of a covert objective and objective ambient scents requires more thoughtful investigation of retailer vulnerabilities when seeking a competitive advantage, and consumer vulnerabilities with respect to new persuasion attempts. We are now observing that some scents are capable of evoking responses before the consumer is even conscious of their presence.

Notes

¹ More information about the sense of smell is available at <http://www.senseofsmell.org/>, accessed October 17, 2008.

² Consumers spend \$4.3 trillion a year buying goods and services from U.S. retailers (US Census Bureau, 2008).

³ See <http://www.scentandrea.com/about.htm>, accessed November 28, 2008.

References

- Barker, S., P. Grayhem, J. Koon, J. Perkins, A. Whalen and B. Raudenbush: 2003, 'Improved Performance on Clerical Tasks Associated with Administration of Peppermint Odor', *Perceptual & Motor Skills* **97**(3), 1007–1010.
- Baron, R. A.: 1997, 'The Sweet Smell of ... Helping: Effects of Pleasant Ambient Fragrance on Prosocial Behavior in Shopping Malls', *Personality and Social Psychology Bulletin* **23**(5), 498–503.

- Bell, S. and C. P. Bell: 2007, 'Future Sense: Defining Brands Through Scent', *The Journal of the Marketing Society* **38**(Autumn), http://www.marketing-society.org.uk/About/manifesto/growthdrivers/Documents/ML_Stephen_Bell.pdf. Accessed 27 Jan 2009.
- Bitner, M. J.: 1990, 'Evaluating Service Encounters: The Effects of Physical Surroundings and Employee Responses', *Journal of Marketing* **54**(April), 69–82.
- Bone, P. F. and P. S. Ellen: 1999, 'Scents in the Marketplace: Explaining a Fraction of Olfaction', *Journal of Retailing* **75**(2), 243–262.
- Brehm, J. W.: 1966, *Theory of Psychological Reactance* (Academic Press, New York, NY).
- Buck, L.: 1966, 'Reaction Time as a Measure of Perceptual Vigilance', *Psychological Bulletin* **65**(5), 291–304.
- Craik, K. H.: 1973, 'Environmental Psychology', *Annual Review of Psychology* **24**, 403–422.
- Dowdey, S.: 2008, 'Does What You Smell Determine What You Buy?' published by How Stuff Works? <http://money.howstuffworks.com/scent-marketing.htm>. Accessed 27 Jan 2009.
- Duke, C. R., G. M. Pickett, L. Carlson and S. J. Grove: 1993, 'A Method for Evaluating the Ethics of Fear Appeals', *Journal of Public Policy & Marketing* **12**(1), 120–129.
- Duncan, L.: 2007, 'Scent Branding: Smell of Success?' published by MarketingProfs on January 30, <http://www.marketingprofs.com/7/duncan9.asp?sp=1>. Accessed 29 Nov 2008.
- Ellen, P. S. and P. F. Bone: 1998, 'Does It Matter If It Smells? Olfactory Stimuli as Advertising Executional Cues', *Journal of Advertising* **27**(4), 29–39.
- Freestad, M. and P. Wright: 1994, 'The Persuasion Knowledge Model: How People Cope with Persuasion Attempts', *Journal of Consumer Research* **21**(June), 1–31.
- Gulas, C. S. and P. H. Bloch: 1995, 'Right Under Our Noses: Ambient Scent and Consumer Responses', *Journal of Business and Psychology* **10**(1), 87–98.
- Herz, R. S.: 1998, 'Are Odors the Best Cues to Memory? A Cross-Modal Comparison of Associative Memory Stimuli a Source', *Annals of the New York Academy of Sciences* **855**(1), 670.
- Herz, R. S.: 2002, 'Influences of Odor on Mood and Affective Cognition', in C. Rouby (ed.), *Olfaction, Taste, and Cognition* (Cambridge University Press, Cambridge), pp. 160–177.
- Hirsh, A. R.: 1995, 'Effects of Ambient Odors on Slot-Machine Usage in a Las Vegas Casino', *Psychology & Marketing* **12**(7), 585–594.
- Kliuga, M., K. Hubert and T. Cenci: 1996, 'Consumer Panel Study on the Effect of Peppermint and Lavender Fragrances on Proofreading Efficiency', in A. Gilbert (ed.), *Compendium of Olfactory Research* (Kendall/Hunt, Dubuque, IA), pp. 131–135.
- Li, W., I. Moallem, K. A. Paller and J. A. Gottfried: 2007, 'Subliminal Smells Can Guide Social Preferences', *Psychological Science* **18**(12), 1044–1049.
- Lindstrom, M.: 2005, *Brand Sense: Build Powerful Brands Through Touch, Taste, Smell, Sight, and Sound* (Simon and Schuster, New York, NY).
- Martin, K. D. and N. Craig Smith: 2008, 'Commercializing Social Interaction: The Ethics of Stealth Marketing', *Journal of Public Policy & Marketing* **27**(1), 45–56.
- Mattila, A. S. and J. Wirtz: 2001, 'Congruency of Scent and Music as a Driver of In-Store Evaluations and Behavior', *Journal of Retailing* **77**(2), 273–289.
- Mehrabian, A. and J. A. Russell: 1974, *An Approach to Environmental Psychology* (Massachusetts Institute of Technology, Cambridge, MA).
- Michon, R., J.-C. Chebat and L. W. Turley: 2005, 'Mall Atmospherics: The Interaction Effects of the Mall Environment on Shopping Behavior', *Journal of Business Research* **58**(5), 576–583.
- Mitchell, D. J., B. E. Kahn and S. C. Knasko: 1995, 'There's Something in the Air: Effects of Congruent or Incongruent Ambient Odor on Consumer Decision Making', *Journal of Consumer Research* **22**(September), 229–238.
- Morrin, M. and S. Ratneshwar: 2000, 'The Impact of Ambient Scent on Evaluation, Attention, and Memory for Familiar and Unfamiliar Brands', *Journal of Business Research* **49**, 157–165.
- Mowen, J. C. and M. Minor: 1998, *Consumer Behavior*, 5th Edition (Prentice-Hall, Upper Saddle River, NJ).
- Obermiller, C., E. Spangenberg and D. L. MacLachlan: 2005, 'Ad Skepticism', *Journal of Advertising* **34**(3), 7–17.
- Perrault, W. D. Jr., J. P. Cannon and E. J. McCarthy: 2008, *Essentials of Marketing: A Strategy Planning Approach*, 11th Edition (McGraw-Hill Irwin, New York, NY).
- Raudenbush, B.: 2005, *Positive Effects of Odorant Administration on Humans: A Review* (Scent Marketing Institute, New York, NY).
- Ravn, K.: 2007, 'Smells Like Sales', *Los Angeles Times*, August 20, F-1.
- Russell, J. A. and G. Pratt: 1980, 'A Description of the Affective Quality Attributed to Environments', *Journal of Personality and Social Psychology* **38**(2), 311–322.
- Spangenberg, E. R., A. E. Crowley and P. W. Henderson: 1996, 'Improving the Store Environment: Do Olfactory Cues Affect Evaluations and Behaviors?', *Journal of Marketing* **60**(April), 67–80.

- Spangenberg, E. R., B. Grohmann and D. E. Sprott: 2005, 'It's Beginning to Smell (and Sound) a Lot Like Christmas: The Interactive Effects of Ambient Scent and Music in a Retail Setting', *Journal of Business Research* **58**(11), 1583.
- Stevens, M.: 2006, 'Grabbing Consumers' Attention by Their Noses', Columbia News Service, <http://jscms.jm.columbia.edu/cns/2006-02-28/stevens-smellmarks>. Accessed 29 Nov 2008.
- Stokols, D.: 1978, 'Environmental Psychology', in M. R. Rosenzweig and L. W. Porter (eds.), *Annual Review of Psychology*, Vol. 29 (Annual Reviews, Palo Alto, CA), pp. 253–295.
- Swinyard, W. R.: 1993, 'The Effects of Mood, Involvement, and Quality of Store Experience on Shopping Intentions', *Journal of Consumer Research* **20**(2), 271–280.
- Thomaselli, R.: 2006, 'Trends to Watch in 2007', *Advertising Age* **77**(51), 10.
- Toth, D.: 1989, 'What's New in Fragrances; To Relax or Stay Alert, New Mood-Altering Scents', *The New York Times*, September 24, page H1.
- Turley, L. W. and R. E. Milliman: 2000, 'Atmospheric Effects on Shopping Behavior: A Review of the Experimental Evidence', *Journal of Business Research* **49**, 193–211.
- US Census Bureau: 2008, 'Estimated Annual Retail and Food Services Sales by Kind of Business: 1992 Through 2006', <http://www.census.gov/svsd/retlann/pdf/sales.pdf>. Accessed 29 July 2008.
- Vlahos, J.: 2007, 'Scent and Sensibility', *The New York Times*, September 9.
- Wilkie, M.: 1995, 'Scent of a Market', *American Demographics* **17**(8), 40–47.
- Zaltman, G.: 2003, *How Customers Think: Essential Insights into the Mind of the Market* (Harvard Business Press, Cambridge, MA).
- Zoladz, P. and B. Raudenbush: 2005, 'Cognitive Enhancement Through Stimulation of the Chemical Senses', *North American Journal of Psychology* **7**, 125–140.

Kevin D. Bradford
 #388 Mendoza College of Business,
 University of Notre Dame,
 Notre Dame, IN 46556, U.S.A.
 E-mail: kbradfor@nd.edu

Debra M. Desrochers
 A.B. Freeman School of Business,
 Tulane University,
 New Orleans, LA 70118, U.S.A.