

**(DON'T) KEEP YOUR NOSE OUT OF MY BUSINESS: AN EXPERIMENTAL
STUDY ON THE EFFICACY OF SCENT MARKETING IN RETAIL
ENVIRONMENT**

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Abstract--*Our senses are frequently bombarded by a wide array of distinguished atmospheric cues anytime we go into a marketplace. Now, marketers venture to signaling invitation through a relatively unexplored sense, the sense of smell. Does the idea make scents? This study aims to investigate whether using ambient scent in a retail setting is actually prolific by observing its effect on the number of shoppers visiting the store. A single-case experiment on a local female fashion store was conducted. The findings suggest that ambient scent does not influence the number of the store's shoppers.*

Keywords: *ambient scent, scent marketing, sense of smell, shopper behaviour, retail*

Introduction

"And a store always smells good. A store can awaken a lust for things you never even knew you needed."
-Sophie Kinsella, *Confessions of a Shopaholic*

This happens most of the time to Becky Bloomwood, a character in Sophie Kinsella's novel *Confession of a Shopaholic*, who is described as a major compulsive buyer. However, her belief that a store has the power to lure people is not a mere literary anecdote. The PAD (pleasure-arousal-dominance) paradigm postulated by Mehrabian and Russel (1974) confirms that atmospheric stimulus generates pleasure and arousal, consequently leads to either an approach or avoidance behavior. This environmental-psychology framework was later revived by Donovan and Rossiter (1982), who introduced it to the realm of in-store retailing (Yalch & Spangenberg, 2000).

Amongst the atmospheric cues used in a store, ambient scent is used to stimulate the senses of a person—a technique that is normally interpreted as scent marketing (Winter, 2012). Today, the scent marketing is gaining more significance that there are about twenty scent-marketing companies in the world, collectively worth than \$80 million (Harold Vogt, 2006 *in* Blondeau & Tran, 2009). Its practice goes as far as in retails, hotels and restaurants (Dowdey, 2008 *in* Bradford & Desrochers, 2009).

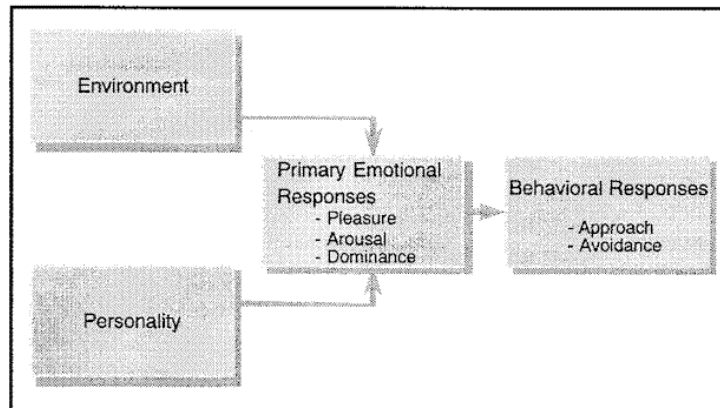
Literature Review

The Mehrabian-Russel Model

The theoretical model developed by environmental psychologist Mehrabian and Russel (1974) took roots on the classical conditioning paradigm, the Stimulus-Organism-Response (S-O-R). It is assumed that atmospheric stimuli can evoke various feelings and induce one to certain behavioral response ensued from the environment-evoked emotional state (Billings, 1990).

FIGURE 1

Classic environment model (Mehrabian/Russell, 1974, p. 8)



Mehrabian-Russell environmental model

From an environmental psychology perspective, Mehrabian and Russell (1974) identified three underlying dimensions of emotions: (1) 'Pleasure', referring to the degree to which a person feels happy or satisfied in a place; (2) 'Arousal', concerning the degree of stimulation caused by an atmosphere and (3) 'Dominance', indicating the degree to which a person feels in control of a situation and feels to have influence over his/her surroundings and others (Breneman & Geuens, 2004). They propose as well that individuals' reactions to all environments may be categorised as either approach or avoidance behaviors. As suggested by Donovan and Rossiter (1982) who adopted it to retail environment context, the responses can be further elaborated in the following taxonomy:

Behavioural Dimension	Approach Behaviour	Avoidance Behaviour
Physical	Patronise store	Avoid store
Exploratory	Browse through merchandises	Remain inanimate or look at minimum number of items
Communication	Interact with sales personnel	Avoid interaction with personnel
Performance and Satisfaction	Repeat patronage	Avoid returning to store

Taxonomy of responses

Some researchers such as Donovan et al. (1994) and Wakefield and Baker (1998) examined the environment in their studies holistically. Nevertheless, various researchers investigated only specific elements of the store environment. For example, Milliman (1982, 1986) as well as Yalch and Spangenberg (1988, 1990) have discovered that music tempo can shorten or lengthen the perceived amount of time spent (relative to actual time spent) in retail environments (Spangenberg, et al, 1996). A study conducted by Areni and Kim (1993) in a wine shop as well as by North, Hargreaves, and Mckendrick (1997) in supermarket also gave the evidence that music type can prime people's product selection (Guéguen et al, 2007). Store-interior colour also plays an influential role on consumer's inclination to shop and store's perceived pleasantness as several studies demonstrated (Bellizzi & Hite, 1992; Babin, Hardesty, and Suter, 2003; in Lee & Rao, 2010). Another multitude of atmospheric cues such as clutter and cleanliness (Bitner 1990; Gardner and Siomkos 1985), lighting (Golden and Zimmerman 1986), crowding (Harrell and Hutt 1976a, b; Hui and Bateson 1991) and window displays (Sen, Block and Chandran, 2002; Oh and Petrie, 2012) had been studied as well (Roxana and Ioan, 2013). Amongst them is olfactory cue, which will be thoroughly discussed next.

Sense of Smell (Olfaction)

As stated by Ache (1991), olfaction is of extreme importance in the lives of many species because it is often their primary window to the environment (Goldstein, 2007). However, the importance of olfaction to human is in contrast with that to animals. Holley (1991) asserts that many animals are *macrosmatic* (having a keen smell of sense that is important to their survival), whereas humans are *microsmatic* (having a less keen sense of smell that is not crucial of their survival). Charles Darwin also came to the conclusion that the sense of smell is extremely of slight service to human in comparison to greater number of mammals (Schiffman, 2001).

The findings of Dr. Yoav Gilad and his colleagues from Weisman Institute in Israel suggest that human made a trade-off between superior olfactory acuity and superior visual detection. Their research discovered that Old World primate species that are known as having trichromatic (red, green, blue) colour vision like human, have larger proportion of *pseudogenes* (inactive genes) amongst their olfactory receptors compared to New World primate species that don't possess such full-colour vision (Herz, 2007:25).

Nevertheless, public interest begins to cultivate in the olfactory perception—particularly to the psychological effects of this sense—for it is a relatively an untapped area in comparison to other sensory modalities, (Chu & Downes, 2000). Schrode (2012) describes how olfaction's general relationship to emotion and memory has been previously well documented (Chu & Downes, 2000; Herz et al., 2004; Maratos et al., 2001; Martin et al., 2007; Yeshurun & Sobel, 2010). Based on her study on comparison of associative memory stimuli (1998), psychologist and olfactory expert Rachel Herz argues that in terms of objective accuracy, recollections triggered by scents are equally good as memories elicited by seeing, hearing or touching yet there's evident distinctiveness of scent-evoked memory: its higher emotional quality. *Amygdala*—the brain part of the utmost importance in the expression and understanding of human emotion (Dolan et al., 2002; Herz et al., 2004; in Schrode, 2012)—is more highly activated when a person recalls a memory by the scent of the perfume than as a result of seeing the perfume in its actual package (Herz, 2007:67). Consequently, human autobiographical recollections are marked as affectively toned if triggered by scent.

Vanilla Scent

Smell preferences may vary across cultures, generations (Lindstrom, 2008:147) and are also subjects to personal and contextual factors (Herz, 2007: 32) yet vanilla is often believed to be an ubiquitously favored aroma (Herz, 2007:34). In experiments where an odour universally regarded as 'pleasant' is required, vanillin has been a standard choice for decades (Fox, no date). A field experiment conducted by Loock (2012), which involved a pretest to determine which ambient scent to use, also echoed the pleasant and relaxing properties of vanilla (although in her study, it came in the second place after lavender in terms of pleasantness and relaxing qualities). In a retail setting, vanilla scent also showed to have positive effects on young fashion shoppers' emotions and satisfaction (Morrison, Gan, Dubelaar & Oppewal, 2011).

According to Rachel Herz (2007:32), our disposition to like or dislike certain odours is nurtured since our embryonic phase, as opposed to general assumption that human odour preferences are innate. If so, this might justify vanilla's prevalent association with warmth, softness and caring, as well as its connotations of purity and simplicity (Fox, no date). Bond between mother and infant early develops from breastfeeding, and the closest thing that smells like breast milk is vanilla.

Scent Marketing

The term scent marketing came up in 2002, defining a subarea of the *neuroeconomic* research—an area of research which analyses neuropsychological effects of advertising and commercial activities on the consumer—and describing the usage of scents for marketing purpose (Bartzos, 2008 in Emsenhuber, no date).

Pam Scholder Ellen, a Georgia State University, once expressed "With all of the other senses, you think before you respond, but with scent, your brain responds before you think," (Lindstrom, 2008:147). When the molecules of scent is captured by our approximately six million olfactory receptors high up in the nasal passages, the sensory information then transmitted to olfactory bulb without a preliminary processing in the thalamus (Brochet & Dubourdiou, 2001) which main function is to relay sensory information as well as regulating alertness. The olfactory bulb is directly connected to the limbic system in the brain, which is the system that governs human's emotional state (Wilkie, 1995 in Bradford & Desrochers, 2009), hence the subliminal nature of olfactory perception (Emsenhuber, no date).

According to Savkina (2012), the effect of olfaction cues on the consumer behavior has been under the focus of researchers since the mid 1990s (Herrmann, Zidansek, Sprott, & Spangenberg, 2012) and many yield to positive results. A study conducted by Alan Hirsch (1993) confirms that 84% of people were more likely to buy a pair of Nike shoes when they inspected them in a scented room than in the other identical yet non-scented room (Österberg, 2008) though it was also argued as being not statistically significant (Bone and Ellen, 1994; Spangenberg, 1996). Hirsch (1995) has also shown that a presence of a pleasant ambient scent in a casino related to its 45% more revenue than comparable nonscented slot machine areas (Winter, 2012). Research conducted by Michon and Chebat (2005) reveals that a subtle use of lemon increased store sales by 63%. Bradford & Desrochers (2009) even report that one scent-marketing firm even offers money-back guarantees, in case its scented products fail to increase sales enough to cover the cost of the promotion (Ravn 2007).

Several studies have shifted the focus toward the coherency of scent, whether it has to be tailored appropriately and accordingly with the other existing cues. Bradford and Desrochers (2009) had reported that congruity between ambient scent and products are capable of increasing positive evaluation, time and money of consumers spent in the store. Matilla and Wirtz's (2001) study showed another positive outcome, specifically on consumers' evaluation of the shopping experience, when the arousal levels of ambient scent and background music matched. The importance of gender-congruency also demonstrated in earlier study by Spangenberg et al. (2004), with gender-congruent scents in gender-based products departments had proved to increase the sales and influence shoppers to rate the store more favourably.

Nevertheless, there were studies that suggest congruency of scent neither has positive or negative effect on affect. A study performed by Schifferstein and Blok (2002) in bookstores, found no effect of thematically congruent ambient scent on the sales of thematically congruent magazine categories. Looock's (2012) experiment with different combinations of scent and music in patient's waiting room implied that when pleasant and relaxing music and pleasant and relaxing scent are used together, they do not lower patients' level of anxiety.

Methodology

This study follows the basic steps of experimental method, which begins with constructing hypothesis. Afterward, an experiment is designed to test the proposed hypothesis. The data are analysed to determine whether a relationship exists between the variables observed.



Main Study

Hypothesis

Mehrabian and Russel (1974) propose that environmental setting, mediated by emotional responses, can induce individuals to two contrasting behavior namely an approach or avoidance. Therefore, if the

emotional responses elicited by the environment is positive then people would reciprocally approach the environment. Deriving from Donovan and Rossiter (1982) response taxonomy, the approach behaviour could be exhibited as: a desire to patronise (*physical*); a desire to explore the environment (*exploratory*); a desire to interact with others (*communication*); and a desire to repeat patronage (*performance & satisfaction*) (Billings, 1990). Because these similar effects have been reported in prior studies that involved specific atmospheric stimulus including scent, researcher expected that emanating a pleasant scent in retail environment would work likewise. The scope of this research, however, is reduced to only one behavioral dimension, namely the physical approach. Consequently, the null and alternate hypotheses are defined as follow:

H₀: Emanating a store with pleasant scent will not lead to higher visitor traffic to the store.

H_A : Emanating a store with pleasant scent will lead to higher visitor traffic to the store.

Time Sampling

Researcher observed store traffic on days that attributed with two extremities: the least and the busiest day of the week. It had been confirmed by the shop owner and shopkeepers, day with the least crowd typically falls on Wednesday while the busiest day normally falls on Saturday. Additionally, every business day that becomes payroll due date is also decided as observation sample for— according to the shop owner's statement—it naturally tends to be flocked with more people than in normal dates. Furthermore, researcher reduced the sampling duration by only three consecutive hours in which the number of visitors hosted by the shop reaches the highest rate. A preliminary test was conducted to determine when were the busiest hours of the day as well as to catch a glimpse of how the store traffic fluctuates during its operational hours. It was discovered that the shopper traffic the shopper traffic was noticeably on its highest during 4 PM to 7 PM on Wednesday and 2 PM to 5 PM on Saturday. Tuesday's crowd was concentrated on 5 PM to 8 PM whereas Friday on 2 PM to 5 PM. *Tuesday and Friday were surveyed as the payroll due dates happened to fall on both days.*

Experiment

The field experiment was conducted within a time frame of 60 days on a local female fashion store located in the third floor of Bandung Indah Plaza. Two conditions were administered to the store: the first was controlled condition in which the store was left in its natural condition, and the other was the experimental condition in which ambient scent was introduced. Both conditions were balanced with same number of observation days (four Wednesdays, four Saturdays, and two payroll due dates), same duration of hours and characteristic (three consecutive hours of the highest crowd per day). During the experimental condition, researcher placed two electric aromatherapy burners on two spots near the store entrance: one on the left side of entrance, beneath the mannequin while the other on right side of entrance, on the shelf. This placement ensured that the scent was present around entrance as well as throughout the store. The scent was prepared on the burners' pots as a mixture of six to seven drops of vanilla essential oil and two tablespoon of water. Once the pot was hot enough, the light scent of vanilla would release.

Observation was carried out directly by researcher. Tally counter was used to figure out the number of shoppers walked into the stores—the dependent variable measured in this study.

Analysis

From the controlled and experimental conditions, researcher obtained two pairs of sample groups, with sample size of thirty hours each ($n=10 \text{ days} \times 3 \text{ hours}=30$). To ensure these samples were normally distributed, researcher performed the Shapiro-Wilk Test on both samples. As shown in the tables below, the p values are not lower than 0.05. Hence, it could be concluded that the samples did not deviate from normality.

Variable	Obs	W	V	z	Prob>z
pretestvisitor~r	30	0.94864	1.632	1.013	0.15544

Shapiro-Wilk W Test for normal data

To arrive at singular conclusion on whether to accept or negate the null hypothesis, researcher tested the data results with the paired t-test. Using the statistics software, the generated output is presented below.

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
					Lower	Upper
posttestvisitor~r	30	48.1	3.891458	21.3144	-8.158926	7.758926

Variable	Obs	W	V	z	Prob>z	
posttestvisitor~r	30	0.96436	1.133	0.258	0.39832	
pretest	30	48.1	4.26624	23.36716	39.37456	56.82544
posttest	30	48.3	3.758255	20.58481	40.6135	55.9865
diff	30	-.2	3.891458	21.3144	-8.158926	7.758926

Mean (diff) = mean (pretestvisitor~r - posttestvisitor~r) t = -0.0514

Ho: mean (diff) = 0 degrees of freedom = 29

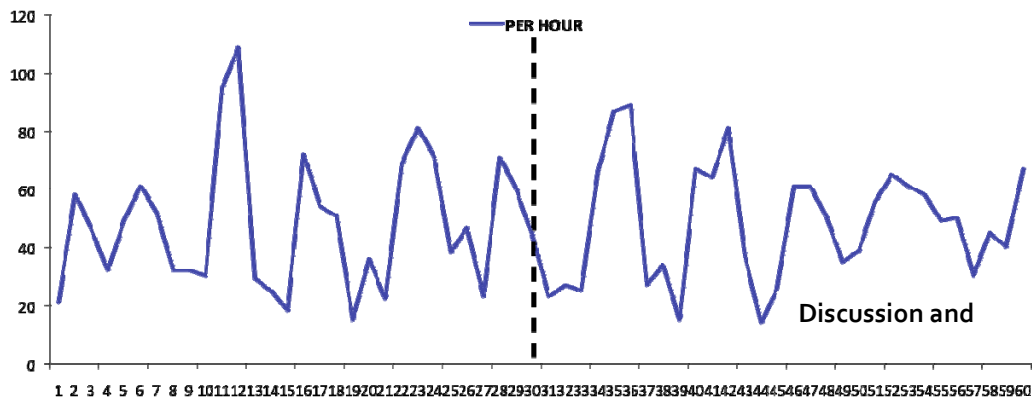
Ha: mean (diff) < 0 Ha: mean (diff) != 0 Ha: mean (diff) > 0

Pr (T < t) = 0.4797 Pr (|T| < |t|) = 0.9594 Pr (T > t) = 0.5203

Pretest represents no scented condition whereas posttest represents scented condition. As shown in the Mean column, the mean difference between the two trials is -0.2, with a standard deviation and standard error of the mean are 21.3144 and 3.891458 respectively, and 95% confidence interval of -8.158926 to 7.758926. The obtained t-statistic is -0.0514 with degrees of freedom of 29, and the corresponding two-tailed p-value is 0.9594, which is greater than 0.05. Therefore, it can be concluded that the mean difference between pretest and posttest is not different from zero.

To compare the two conditions visually, an AB design was employed. Axis x represents the time samples in hour while axis y represents number of shoppers, the dependent variable in the experiment. As the figure above exhibits, the curve remain unstable throughout condition A (controlled) and B (experimental) without hint of significant increase.

Trends in AB Design



Recommendation

Discussion

Findings from this study demonstrate that *the presence of ambient scent in store environment had no impact on its visitor rate.*

However, a word of caution is needed in interpreting this end result for there were particular circumstances that limited the current study. In most studies, of either scented products or scented environment, researchers have generally attributed the effects of the scent to its pleasantness or unpleasantness, thus implying that the hedonic nature of the scent is significant (Bone and Jantrania, 1992). Therefore, researcher presumed that pleasantness was the most salient characteristic in selecting the scent used in this study. Vanilla scent, which deemed to be among the list of pleasant scents as suggested in the literature review, was selected. As it was also rated significantly feminine (Spangenberg et al., 2004), the presence would be relatable with Myshop as a female fashion store. However, the calming, low arousal properties of the scent was oftentimes superimposed with loud, high arousal music played in the store such as alternative/rock or dance music. Not to mention the loud music from other tenants and noises that resonated across the third floor on which Myshop was located.

As this study was focused on ambient scent in retail setting, researcher did not investigate its interaction with music or other existing variables in the environment, thus could not establish whether other causal relations were present. Nevertheless, the zero impact (neither positive or negative) of incongruence of arousal levels of ambient scent and background music on approach behaviour is consistent with prior study by Matilla and Wirtz (2001).

Finally, another discernable limitation of this study is the lack of variable variety. As researcher only observed one dimension—namely, the store patronization—of the approach-avoidance behaviour, the result could not be generalised to other behavioral dimensions. In other words, the ineffectuality of ambient scent to invite people found in this study does not necessarily mean it cannot enhance customer's approach behaviour in terms of exploratory, communication, or performance and satisfaction. It is to be noted as well that using an apparent, quantitatively measurable variable means that another dimension is overlooked: the emotional dimension. Therefore, the question of whether shoppers' perception and inner feelings were affected during the experiment remains unexplored.

Suggestion

As environmental psychology postulates, people perceive the environment holistically. In other words, people's responses are the ensemble effects of existing atmospheric cues in the environment, thus different combinations of ambient cues might produce differential responses. Therefore, future research may as well studies the interaction effects of ambient scent with other atmospheric cues. In order to obtain more insights, it is advisable that future research explores varying independent and dependent variables of the study. Given the diverse characteristics of retail environment, researcher also suggests the use of multiple fashion retail outlets as to allow the findings of the study to be generalised.

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