Do You Need To Change Your Store Atmospherics?

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Abstract

Through observation and survey an industry standard for store atmospherics in the retail apparel sector is established. The ideal store atmospherics in terms of a positive affective response is established by experiment. An experiment is then used to expose subjects repeatedly to store atmospheres. Findings show that with a less than ideal atmosphere affect declines over time, whereas an ideal atmosphere mitigates this. Results also suggest that positive stimulus change needs only be minor to gain affect.

Keywords: store atmosphere, affective response, repeated exposure

Introduction and Background

In our study we compare the 'affect' responses of shoppers exposed repeatedly to an industry standard store atmosphere to those exposed to an experimentally derived ideal atmosphere and identify the impact a change in atmospherics has on affect. To establish the industry standard we use store observation based on a set of dimensions derived from the literature to then create a survey measurement of retail managers. From the survey and observation we create a schema of industry standard stimuli. To establish the ideal levels we conducted an experiment to identify the levels of stimuli that elicit the greatest affect for the store. Following this a second experiment was conducted where subjects were repeatedly exposed to a standard store, the ideal store, or a combination changing from one to the other halfway through the repetitions.

Store atmospherics has generated widespread interest by academics and practitioners since Kotler (1974), Baker (1986), and Bitner (1992) encapsulated the concept of olfactory, aural, tactile, and visual dimensions creating an environment that affects shoppers' emotions and behaviour. The Donovan and Rossiter (1982) approach-avoidance model focused much of the ensuing attention on behavioural responses to individual or limited interactions of stimuli (for a review see Parsons, 2004), with less attention paid to affect or emotional responses to the store environment.

Recent studies have begun to rectify this (e.g. Kottasz, 2006; Wirtz et al., 2007; Oakes and North, 2008a), but general frameworks persist in examining single-period responses to stimuli (e.g. Fiore and Kim, 2007; Noad and Rogers, 2008; Soars, 2009), continuing support for the single stimulus – single period response approach (e.g. Eroglu et al., 2005; Michon et al., 2005; Ward et al., 2007; Oakes and North, 2008b). Babin and Attaway (2000) asked whether re-patronage is perhaps in part a function of affect created by store atmospherics, with others looking at the enjoyment of the shopping experience (as created by the environment) influencing re-patronage (e.g. Ogle et al., 2004; Hart et al., 2007; Michon et al., 2008; Joseph-Mathews et al., 2009; Seock, 2009). What has not been examined is whether repeated exposure to the sensory stimuli alters the affective response of shoppers. Is there perhaps a decay effect or is there a compound effect? The approach in the past has also been to vary levels of stimuli to determine likely responses with little regard to industry norms for stimuli and expected responses. In an economic era necessitating caution with expenditure, and a shopper era demanding sustainability, it is pertinent to consider what effect the investment in atmosphere may have over time, and whether changes are warranted.

The Industry Standard Store Atmosphere

A survey of the store atmospherics literature established a set of sensory stimuli that had been previously studied, ranging from scents through music to temperatures. This set was used as a field check for observation of stores (n=212) throughout NZ. Once literature-suggested stimuli had been observed (confirming the existence) the observation criterion changed to looking for unusual combinations or novel stimuli. The literature-based sensory constructs were then overlaid with observed levels of the items; e.g. 'lighting source' was observed to include natural light, exposed fluorescent, ceiling panel fluorescent, halogen, non-halogen spotlights, etc.

To establish marketplace practice the GMs of 39 NZ clothing retailers were surveyed

using a set of fixed response questions derived from the observation. There were three types of measurement, all designed to provide characteristics. One type consisted of 'presence' questions - respondents were asked to indicate whether they had such stimuli present in-store - and were simple, pre-coded lists that were mutually exclusive and collectively exhaustive, using descriptors that discussions with retailers in the observation stage had suggested. A second type consisted of scales measuring 'levels' of stimuli. These scales were linear numeric scales with full descriptors based on retailer discussions, designed to elicit distributions for each stimuli. The midpoints were the mode from observations. The third type were 'expectation' questions, asking respondents to select from a list one or more expected responses to their in-store stimuli. These were centered on the key stimuli dimension constructs identified in the literature. Pre-tests of the sections, the whole and the revised questionnaire were undertaken (Alreck and Settle, 1995; Churchill and Iacobucci, 2002).

A schema, following the classic guidelines of Sokal and Sneath (1963), Frank and Green (1968), Harvey, (1969), and Hunt (1991), of the four sensory dimensions was constructed from the responses to the survey. This forms the 'industry standard' set of stimuli (Table 1), along with the expected responses to the stimuli (Table 2).

TABLE 1 Schema of Sensory Stimuli
Proportion Stating Presence of this Level Shown in Parentheses, or if Five-point Scale used, Mean and Std. Dev. shown in Parentheses; Multiple Levels Permitted; Only levels that were listed by 10% or more are given

Stimuli Dimension	Retailer Reported Level of Stimuli
Music Style	Easy listening (40.0%); Popular (Top 40) (28.6%)
Music Volume	Average (2.94: 0.072)
Music Tempo	Average (3.03: 0.079)
Music Familiar & Preferred by Cust.	Yes (91.2%)
Other Sounds	No Other Sounds (80%)
Scent Present	No (76.5%)
Scent Pleasant	Pleasant (2.13: 0.350)
Scent Congruence	Somewhat Congruent (2.00: 0.267)
Temperature Controlled	Yes (85.3%)
Temperature	18 - 25 deg. C (75.8%); 10 - 17 deg. C (18.2%)
Flooring	Carpet (73.0%); Wood (32.4%); Concrete (21.6%); Vinyl (16.2%); Tiles (13.5%)
Lighting Source	Halogen (55.3%); Natural light (50.0%); Exposed fluorescent (42.1%); Ceiling panel fluorescent (36.8%); Non-halogen spotlights (23.7%)
Lighting Level	Bright (2.08: 0.095)
Wall Colour	White (34.3%); Cream (25.7%)
Ceiling Colour	White (74.3%); Cream (14.3%)
Floor Colour	Grey (21.2%); Brown (12.1%); Blue (12.1%); Natural wood (12.1%)
Lighting Colour	Translucent (86.0%); White (14.0%)

TABLE 2 Shopper Responses to Stimuli, Expected by Retailers
Proportion Stating this Expectation Shown in Parentheses; Multiple Expectations Permitted

Stimuli Dimension	Retailer Expectation of Shopper Response
Music	Stay longer (41.2%); Take time to examine merchandise (32.4%); Increase sales (23.5%); Examine the merchandise more (14.7%); Slow down shoppers move through store (14.7%); No change (14.7%); Spend less time in store (14.7%)
Scent	Evaluate store more positively (38.9%); Like store (33.3%); Take time to examine merchandise (27.8%); No change (27.8%); Increase sales (22.2%); Stay longer (22.2%); Slow down shoppers move through store (22.2%); Examine the merchandise more (16.7%)
Temperature	Stay longer (72.7%); Like store (51.5%)
Lighting/Colour	Examine the merchandise more (64.3%)

The Ideal Store Atmosphere

We designed a two-stage experiment to establish the ideal set of stimuli (cf. industry standard). Treatments were presence, and levels of stimuli, with measurement taken of affective responses. Subjects (n=489) were randomly assigned to treatment groups, or a control group, with a G.L.M. used for analysis. A digital movie was made of a clothing store with segments lasting approximately 90 to 120 seconds (depending on the stimuli incorporated). This approach has proven effective for environmental representation of visual and aural aspects (Chebat, Gelinas-Chebat, and Filiatrault, 1993; Voss, Parasuraman, and Grewal, 1998; Machleit and Mantel, 2001; Baker et al, 2002), providing a high degree of ecological validity (Bateson and Hui, 1992), where a specific environmental setting is required (Sweeney and Wyber, 2002). Studies by Parsons (2002), Parsons and Conroy (2006), and Parsons (2009) demonstrate the ability of a digital representation to capture an audience's affective and cognitive flow for sensory stimuli with visual and aural stimuli portrayed electronically, and tactile and olfactory stimuli physically present. A measure used by Voss, Parasuraman, and Grewal (1998) was employed asking a sub-sample if the videotaped scenario was realistic (on a seven-point scale anchored by 'very unrealistic' [1] and 'very realistic [7]: mean = 6.4), to assess ecological validity, which was considered acceptable. The video was also pretested to ensure a reasonable level of prototypicality (Ward, Barnes, and Bitner, 1992). A manipulation check was conducted with a sub-sample, identifying the occurrence of temperature, lighting, music, and scent differences correctly. Subjects entered a room that was fully blacked out with theatre-quality curtains. A single light was on illuminating a black, adjustable leather chair. The subject was seated and told they were about to see a 90-120 second video clip of a store. They were given a set of wireless headphones, and were told that at the same time as the video starting, some music would be heard. The video projector was rear of the subject out of sight. The projection filled the wall in front of the subject (approx. 4m x 3m). During the video, a scent level was present and the temperature in the room was controlled. Immediately upon termination of the video, the subject was presented with the measurement instrument. The levels of each stimulus were applied as follows; **Music**: (Slow Tempo; Mid Tempo; Fast Tempo); **Temperature**: (Extremes (Hot/Cold); Mid Level (Comfortable)); **Lighting**: (Bright; Dull (Neutral/Dull)); **Scent**: (Congruent; Incongruent), based on the schema, forming a 3 x 2 x 2 x 2 design. The music was classical/popular mixes, with tempo pre-tested to be slow, mid, and fast tempo. Heating/cold air units, monitored using a thermostat, controlled temperature. The two levels were the 18-25 degree level (mid) and 10-17 (low). Lighting was adjusted in the video by altering the contrast and brightness levels in the digitization. Again, lighting was pre-tested to ensure subjects saw the contrasts as reflective of the industry descriptors. Finally, scent was perfume (congruent associated - Parsons, 2009) and coffee (incongruent) presented through a spray. The sample was approx. one-third 'general population' and two-thirds students. As the store was a type likely to be shopped at by both groups the inclusion of a student sample for convenience was not seen as a potential problem; however the split sample responses were compared, with no significant difference found. As discussed by Sternthal et al (1994), the need for a sample that is truly representative of the population of interest arises only for research aimed at generalizations. For the theoretical explanation this paper seeks, a more homogenous sample is appropriate as it lessens the possibility of diversity undermining the chances of finding theoretically predicted outcomes. To examine the responses to stimuli, a measure of affect was developed based on scales originally developed by Fisher (1974) for measuring affect

in terms of perceived environmental state. The 13 relevant items from Fisher's (1974) environmental quality scale that have been used in similar environmental marketing studies (e.g. Crowley, 1993; Spangenberg, Crowley, and Henderson, 1996; Parsons, 2009) were employed. The mean of the 13 items is taken for each subject to give a score for affect. Cronbach's alpha for the store = 0.7795, an acceptable level (with the common threshold held as 0.7000 – Hair et al, 1995). It is conceivable that normal experience with the store-type may have an effect upon responses to stimuli, particularly in light of Mitchell et al's (1995) discussion of expected stimuli having different effects from unexpected. On this principle, subjects treated with a store that, according to the schema developed, was typical and expected, are likely to have less positive affect responses than those for whom the store was typical, but because of inexperience, unexpected. Three items were used to measure subjects levels of normal exposure to the store type; typical frequency of visits to the store type, typical expenditure at such a store, and typical length of time spent in such a store and used as a check of potential difference in affect (no significant difference was found).

MANOVA was employed to analyse the dependence relationship represented as the differences in a set of dependent measures (*affect and four behavioural measures that are not discussed in this paper*) across a series of groups formed by the four categorical independent measures (the sensory stimuli). Hair et al's (1995) requirements for MANOVA are met as follows: the sample in each cell exceeds the number of dependent variables; the interactions are ordinal; the use of covariates to account for systematic bias has been taken care of by the random assignment of respondents to treatments; the three assumptions of MANOVA, independence (among observations), equality of variance-covariance matrices, and normality (of the dependent measures) are all considered met. There is no discernible time-order amongst respondents, treatments were randomly shuffled throughout each day, and respondents were randomly assigned to experiment treatments, and there does not appear to be any pattern of dependence amongst respondents. The equality of the matrices is tested by the box test and there are no significant differences (F = 0.951, sig. 0.735). Group sizes are approximately equal so even if the assumption were violated, there would be minimal impact (Hair et al, 1995). While there is no test for multivariate normality, univariate normality across the measures suggests that any departure from multivariate normality would be inconsequential[1]. Outliers were not a problem as we confined data to limited scales. Pillai's criterion was used; it is the most robust of the tests available when sample sizes are not large (as in this case). Effect size and the power of the test were examined and considered acceptable. We interpret the results in light of observed causality based on three common criteria (e.g. Churchill and Iacobucci, 2002); our estimated marginal means support concomitant variation, time order of occurrence is integral to the after-only experimental design, and the elimination of other possible causal factors is obtained by the random assignment of subjects and the controlled laboratory setting. The significant main effects and interactions were used to run the second stage of the experiment with repeated measures over a four-day period (n=62 subjects). The same procedures were followed as before, except that subjects were exposed to the industry standard or ideal set of main effects and interactions (derived from the earlier experiment's results), or a combination of both over the period (changeover occurring period three). The ideal

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[1] Kolmogorov-Smirnov tests give the following univariate results: AFFECT: Z = 2.236; TIME: Z = 3.440; MONEY: Z = 3.259; FREQ: Z = 2.968; LIKELY: Z = 3.243. In all cases the asymptotic significance was 0.000.

levels were *bright lighting, fast music, mid-level temperature*, and *presence of a congruent scent*. The industry norm is *bright lighting, mid-tempo music, mid-temperature,* and *no scent*. A repeated measures G.L.M. was used to examine the within-subjects effects of repeated exposure to stimuli. The ideal atmosphere group were exposed to the same ideal stimuli in each of the four periods. The industry atmosphere group were exposed to the same industry stimuli in each of the four periods. The industry/ideal group was exposed to two periods of industry atmosphere followed by two periods of ideal atmosphere, while the ideal/industry group had the reverse. Mauchly's test of sphericity suggests that for the industry, industry/ideal, and ideal/industry groups, sphericity can be assumed for the analysis, but for the ideal group, the epsilon correction needs to be applied, so the Greenhouse-Geisser epsilon corrected and Huynh-Feldt epsilon corrected significance levels are used. The ideal group had no significant effect for affect over time (F = 1.848, Greenhouse-Geisser Sig. 0.172; Huynh-Feldt Sig. 0.165), and neither did the ideal/industry group (F = 2.291, Sig. 0.095), but the other two did – industry group (F = 5.910, Sig. 0.002); industry/ideal group (F = 5.977, Sig. 0.002).

Conclusion

The directions of the repeated exposure response trend indicate that if the store atmosphere is less than ideal, there is a significant decline in affect for the store over time, whereas if the atmosphere is ideal, the effects of repeated exposure could be mitigated. Furthermore, if the atmosphere is changed positively (i.e. the stimuli levels become ideal or closer to ideal) there can be a significant increase in affect for the store. This is reinforced if we examine the whole set of subjects as a single group. Mauchly's test of sphericity suggests that the normal test can be applied, which shows a within-subjects effect (F = 2.622, Sig. 0.052) where a change (occurring for 48.4% of customers) between period 2 and period 3 is enough to revitalise affect for the store (however short-lived). Whilst the amalgamation of the combinations might seemingly cancel each other out, the point is that 'change' in its own right seemingly has a positive effect, while repetitiveness is observed to have a negative effect. Building on the conference theme of doing more with less, the change does not have to be wholesale nor dramatic. The differences between the industry standard set of influential stimuli and the ideal set is a matter of level. By altering the level of the stimuli retailers can achieve a meaningful affective response at a fraction of the cost of a full refit.

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