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Modelling the Effects of Mall Atmospherics on Shoppers' Approach Behaviors

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Modelling the Effects of Mall Atmospherics on Shoppers' Approach Behaviors

Abstract

Despite previous work, researchers still do not fully understand the mechanisms by which environmental stimuli influence emotions and affect behavior. This paper attempts to address this knowledge gap by modelling the effects of a stimulus on emotions and behavior within the context of a shopping mall and retail stores. We evaluate a stimulus-response model based on the influence of perceptions on shoppers' moods, which in turn influence approach behaviors. A structured questionnaire survey of actual shoppers in a real mall environment (n=315) was analysed by structural equation analysis. The exemplar stimulus consisted of a Captive Audience Network (CAN or private plasma screen network) – a topic that has been little researched to date. The influence of the CAN was small but significant. The findings have implications for practitioners as even small changes in image can have a substantial effect on profitability.

Keywords: Environmental psychology, shopping malls, consumer behavior, store image, atmospherics.

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Modelling the Effects of Mall Atmospherics on Shoppers' Approach Behaviors

Introduction

Despite academic research and practitioner experiment (see Turley and Milliman, 2000), mechanisms by which people perceive stimuli and convert perceptions into actions are still not fully understood. This paper addresses the mechanisms by which a stimulus acts by changing consumers' images of a mall and/or retail stores and increasing pleasure and/or arousal emotions. These have been exemplified in a variety of academic studies and expressed paradigmatically in terms of stimulus-organism-response. This is an important topic as previous work demonstrates that small differences in image can affect profitability substantially (Dennis *et al.,* 2002).

As with retail stores, shopping malls need to be constantly fine-tuned to ensure that they follow the pattern of customer expectations and (quality) marketing orientation (Newman and Foxall, 2003). How shoppers perceive retail space relies on the operator's manipulation of cues that stimulate feelings and facilitate judgements. This paper explores how mall managers can manipulate marketing communications stimuli using an exemplar stimulus to increase shoppers' approach behaviors such as spending. The stimulus used for this exploratory research consisted of a Captive Audience Network (CAN or private plasma screen network). Little previous research is available on the effects of CANs (for an exception, see Thomke, 2003, who reported a 5.9 percent improvement in customer satisfaction in a retail bank resulting from screen installation). This study explores the perception of the screens stimulus and the effects on shopping approach behaviors in a trial at an in-town, sub-regional shopping mall in the South East of the United Kingdom, renamed here as the 'Delphi' as the owners have requested anonymity.

For decades, retailers and researchers have been aware that shopping is not just obtaining tangible products but also experience and enjoyment (Martineau, 1958). For

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example, Dennis and associates (2002) find that service and experience attributes are more associated with shoppers' choices of malls than are shops and merchandise. Newman and Patel (2004) confirm this for specific retailers. Newman (2002) finds the reputation of the retailer links to the perceived clarity of company image. Enjoyment and entertainment are important benefits of shopping (e.g. Babin *et al.,* 1994; Sit *et al.,* 2003; Yoo *et al.,* 1998), valued by consumers, and reflected in their spending (e.g. Donovan *et al.*, 1994; Jones, 1999; Machleit and Mantel, 2001; Sherman and Smith, 1987; Smith and Sherman, 1993).

Dennis and colleagues (2002) report that image influences sales and rental income at a mall. Similarly, Turley and Chebat (2002) draw attention to studies indicating association between image and purchasing behavior (e.g., share of household spending, Hildebrandt, 1998; store loyalty, Sirgy and Cocksun, 1989). Shopping environments are a substantial, quantifiable component of image and the environment of a mall influences shopper spending. Turley and Milliman (2000) review experimental atmospheric and servicescape (see Bitner, 1992) studies and conclude that the link between atmosphere and sales is strong and robust. Twenty-five among 28 studies that use sales as a dependent variable report some statistical relationship between changes in the retail environment and sales. Spies and co-workers (1997) provide solid empirical evidence, based on a quasi-experiment, a comparison of two stores differing in atmosphere, but otherwise similar. Enhanced store image equates to pleasant atmosphere, enhanced mood, goal attainment and higher spending on unplanned purchases. The most important store characteristics are those helping shoppers to achieve their shopping goals (Spies *et al.* 1997), and lead to a more concrete and positive image of shopping malls.

Image of shopping malls

Here, image means an overall evaluation or rating used to guide actions (Boulding, 1956). Boulding used the example of a temperature controller. The sensor measures an

'image' of (e.g.) a furnace temperature. The controller uses that 'image' to guide an action such as the opening a fuel valve. In our context, we postulate that the shopper has an image of a mall and that image potentially guides an 'action', i.e. spending. Image includes both functional qualities and the 'aura of psychological attributes' (Martineau, 1958, p. 47). For example, shoppers are more likely to buy from a store with a positive image of price, customer service or atmosphere (e.g. Berry, 1969; Lindquist, 1974). Malls with strong images have higher sales turnover, catchment area and rental income than those with poorer images (Dennis *et al.,* 2002; Finn and Louviere, 1996; Newman and Patel, 2004; Severin *et al.,* 2001).

We base our measure of mall image upon aspects related to approach behavior. For example, 'General layout' is one of the attributes most associated with spending (Dennis *et al.,* 2002; Newman, 2002). Similarly, Severin and associates (2001) find 'Quality of the stores' links with patronage. Attributes such as these can form a basis for shopping environment, stores and products image dimensions.

A number of researchers report mall attribute image lists (Dennis *et al.,* 2002; McGoldrick and Thompson, 1992; Severin *et al.,* 2001; Sit *et al.,* 2003). Table 1 reproduces the 'top ten' attributes from Dennis *et al.* (2002). These are most associated with spending at malls. McGoldrick and Thompson (1992) also model spending at malls. User friendliness and Recreational experience are the factors significantly associated with spending ($p = 0.05$). The attributes that load highest ($R > 0.5$) include four of those already listed in Table 1. We add Recreational Experience ('In-place' to go when the weather is bad) and User Friendliness (Security). Similarly, Finn and Louviere (1996) find that 'Wide selection' and 'Low prices' account for 86 percent of variance in share of mall choice. Severin and colleagues (2001) confirm many of these attributes to be associated with relative spending, stable across time and between countries. The combination of the above attributes provides us with 14 image attributes expected to be associated with mall patronage behavior.

[Insert Table 1 here]

Emotion and behavior

In the context of our research, and in consideration of Mehrabian and Russell's (1974) work in behavioral settings, retail management may wish to design stimuli to increase either pleasure or arousal thereby influencing approach behaviors. For example, in some situations, **arousal** may be evoked using fast tempo music and **pleasure** may result from observing pleasant video images. Ultimately, the image of a store may be enhanced by providing relevant audio-visual information via screen technology. The emotional links to approach or avoidance (shopping) behavior stem theoretically from a stimulus-organism-response (S-O-R) framework developed by Mehrabian and Russell (1974). This may be represented as follows:

- **Stimuli – environmental**: e.g. store image and atmosphere components such as layout, design, colors, music and odors
- **Organism – emotions**: (i) pleasure/displeasure; (ii) arousal/no arousal; (iii) dominance/submissiveness (the well known 'PAD', often part of the MR model)
- **Responses – shopping behavior**: the extent to which people approach or avoid perceived stimuli. In the shopping context, approach can be measured by, e.g. (i) time in store; (ii) spending; (iii) number of items bought and prices; and (iv) intention to revisit.

A significant amount of support is provided in the literature for the effects of pleasant environments on planned and unplanned purchasing. For example, customers' pleasure emotion and impulse purchasing can increase in a store with a pleasant atmosphere (Ang *et al,* 1997; Spies *et al.,* 1997). Manipulable cues such as music and aroma influence emotion and spending (Chebat and Michon, 2003; Dubé and Morin, 2001; Newman 2002; Mattila and Wirtz, 2001). Chebat and Michon (2003) is one of few studies concerning a mall rather than

stores. Emotional aspects such as pleasure are additional to cognitive image variables such as price and merchandise (Donovan *et al.,* 1994). Sherman and Smith (1987) conclude that shoppers' moods influence behavior **after** customers decide to shop, and extra spending depends on **marketer-driven stimuli**. Manipulable cues influence mood, leading to impulse shopping.

The MR model is valid in a variety of contexts and cultures (Foxall and Greenley, 2000; Foxall and Pearson, 2002; Foxall and Soriano, 2005; Soriano and Foxall, 2002). Pleasure predicts shopping responses, but arousal is not clear-cut (Chebat and Michon, 2003; Donovan *et al.,* 1974; Newman (2002). On balance, we retain arousal because of a conditional interaction between pleasure and arousal with respect to approach (Chebat and Mechon 2003; Russell and Pratt, 1980) [1]. For example, in advertising (which is partly the function of a CAN), pleasure is key to ad impact and pleasure is moderated by arousal (Huang, 2004). In our work we do not include dominance/submissiveness due to its less than reliable impact on approach avoidance, particularly in retail settings [2].

Below, we hypothesize a model of the processes by which perceptions of the CAN atmospheric stimulus link with shopper approach behaviors. The dependent approach variables include spending and related behaviors from Donovan's and colleagues' (1994) adaptation of the Mehrabian and Russell (1974) scale: (i) Likelihood of spending more money than intended; (ii) Time spent shopping; (iii) Number of items bought, and (iv) Frequency of visits. In addition, we adopt the dependent variable from Chebat and Michon (2003) and Dennis *et al.* (2002) 'Spending on non-food shopping'.

[Insert Figure 1 and Table 2 here]

Model building and hypotheses

In the MR model, a manipulable stimulus such as a CAN influences shoppers' perceptions of the image of the environment of a mall and stores and products. A pleasant

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image of a mall positively influences shoppers' moods. In turn, a positive mood positively influences shoppers' approach behaviors such as spending:

H1 *A manipulable stimulus may positively influence shoppers' perceptions of image, which will positively influence shoppers' moods, and in turn positively influence approach behaviors.*

Below, we re-state H1 in testable sub-hypotheses (summarised in Table 3 and Figure 1). These follow logically from the section above and the MR model. More specific support is cited where relevant. First, Chebat and Michon (2003) find that an atmospheric stimulus (aroma) positively influences shoppers' perceptions of the image of a mall in two ways: (i) perceptions of the shopping environment; and (ii) perceptions of the stores and products. Similarly, Dubé and Morin (2001) report that pleasant music positively influences shoppers' perceptions of the image of a store. We hypothesize:

H1a *An atmospheric stimulus such as a CAN positively influences shoppers' perceptions of the shopping environment of a mall.*

H1b *An atmospheric stimulus such as a CAN positively influences shoppers' perceptions of the stores and products of a mall.*

According to MR, shoppers' perceptions of the image of both the shopping environment; and stores and products positively influence shoppers' moods, leading to our hypotheses H1c to H1f below. Perceptions of the environment of a mall strongly influence images of the stores and products (e.g. Chebat and Michon, 2003):

H1c *Shoppers' perceptions of the shopping environment positively influence shoppers' perceptions of the stores and products of a shopping mall.*

Links between images of shopping malls/stores/products and emotions are implicit in MR (e.g. Chebat and Michon, 2003):

H1d *Shoppers' perceptions of the shopping environment positively influence shoppers' arousal*

H1e *Shoppers' perceptions of the stores and products in a shopping mall positively influence shoppers' arousal.*

Ang *et al.* (1997) find that a better (bank) servicescape results in more pleasure:

H1f *Shoppers' perceptions of the stores and products in a shopping mall positively influence shoppers' pleasure.*

Foxall and Soriano (2005) support the influence of arousal on approach behaviors. When consumers are insufficiently aroused, they are likely to become bored, reducing pleasure and likely spending less [1]. According to (e.g.) Chebat and Michon (2003) (malls); Huang, (2004) (advertising); and Wakefield and Baker (1998) (shops); the influence of arousal is indirect, acting through pleasure:

H1g *Shoppers' arousal positively influences shoppers' pleasure.*

Spies and colleagues (1997); and Ang and colleagues (1997) find that that more pleasure induces more approach behavior:

H1h *Shoppers' pleasure positively influences shoppers' approach behaviors.*

Chebat and Michon (2003); and Dennis and colleagues (2002) report that shoppers' positive perceptions of the stores and products of a mall directly influence approach behaviors such as spending positively:

H1i *Shoppers' perceptions of the stores and products in a shopping mall positively influence shoppers' approach behaviors.*

Finally, extending Ang and colleagues' (1997) bank servicescape findings to a mall environment, we hypothesize that positive perceptions of the shopping environment of a mall directly positively influence shoppers' pleasure (as well as indirectly through arousal):

H1j *Shoppers' perceptions of the shopping environment positively influence shoppers' pleasure.*

Chebat and Michon (2003) compare the MR model with an alternative based on Lazarus's (1991) cognitive theory of emotions (the 'CE' approach). This holds that antecedent emotions influence consumer behaviors (Belk and Russell, 1975; Gardner, 1985), mediated by environmental cues. Chebat's and Michon's (2003) findings support the form of the MR model over the CE model except that in their preferred model the manipulable stimulus (aroma) positively influences shoppers' pleasure emotion (and hence, shopping approach behavior). This is consistent with Spies and colleagues (1997) finding that shoppers' moods improve in a store with a pleasant atmosphere and deteriorate in a store with an unpleasant one. This aspect of CE is important as it implies that the stimulus can be designed to influence pleasure directly. This leads to our second main hypothesis:

H2 *A manipulable stimulus may positively influence shoppers' pleasure mood, which will in turn positively influence approach behaviors.*

We illustrate our hypothesized model schematically in Figure 1 and summarize the hypotheses in Table 3. In order to match rigorously our model to our theory framework, the number of hypotheses is relatively high. Nevertheless, the number of constructs is within the maximum recommended by Bentler and Chou, 1987.

[Insert Table 3 here]

Method

The method consisted of a quantitative survey in which we measured reported shopper spending and other variables using questionnaire responses. We eschewed retailer sales data in order to avoid anomalies caused by (e.g.) weather, interest rates and competitor advertising that would have confounded the results. The fieldwork took place at a sub-regional mall that consisted of a single storey with a typical blend of retail provision and services. In addition to the usual apparel and other comparison retailers, the mall also included a drugstore and a grocery supermarket, making shoppers' trip purposes more typical of shopping in general

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(Arentze *et al.,* 2005; Dellaert *et al.,* 1998). The researchers thus obtained rare access to data from real customers in a real shopping environment (rather than students and simulation as frequently used for exploratory research).

The survey instrument was an assisted self-report questionnaire, requiring respondents to rate the CAN screens and their content, plus the mall and various emotions. The design utilized 5-point bi-polar scales (e.g. very poor to very good). By and large, questionnaires of this type tend to be relatively standard with the scaled responses set in layers or sections. This research adopted a similar format and segmented variables into core themes: image; pleasure-arousal; approach-avoidance; and general demographics which examined respondents' profiles. The length of each questionnaire was restricted to encourage a high response rate during data collection. A plasma screen CAN was installed especially for the trial, which consisted of one week familiarisation plus two weeks evaluation. The CAN consisted of twelve 1.1-metre plasma screens distributed around the public areas, plus additional screens in seven participating retailers – making up 22 screens in total. Broadcasted content consisted of two hundred bespoke messages sourced partly from the mall operator and retail tenants; and partly custom-made for the trial. The CAN in the public areas carried promotional material from retailers (from both those with, and some without, screens in their stores), information about the mall's facilities and public information about external services such as the town theatre and farmers' market. Screens in the participating retailers carried mainly carried content specific to those retailers but some also carried selected material from the public provision.

Selection of the sample was problematic. Should the study aims have sought to explicate a more representative and random sample this would have called for a postal survey. Following this route would have placed the study in danger of under-representing the more frequent users of the Delphi mall. The findings concern mall shoppers, and the results have implications for mall managers. Therefore, the sample was as representative as practicable of

the Delphi's customers. A convenience mall intercept survey achieved the desired sampling technique (*vis-à-vis* omitting non-customers). Howard (1992); and Hackett and Foxall (1994) use a similar method for comparing shopping malls. This sampling provides quality, accurate data (Bush and Hair, 1985). The technique is more likely to select respondents who stay longer, and is more likely to be representative of mall shoppers' approach behaviors than a true random sample (Nowell and Stanley, 1991).

Researchers intercepted respondents near three coffee shops or in the general mall concourse. Fieldwork spanned two weeks and most opening times. Respondents were pre-screened based on: (i) they had seen the CAN screens (92 percent had) – and (ii) the mall studied was their most frequent or next most frequent non-food shopping location. The sample consisted of 315 completed (after deducting the eight percent of shoppers approached who had not seen the screens). This sample comprised 73 percent females. Females were thus sampled proportionately to their anticipated spending (e.g. Dennis and colleagues, 2002, finds that females represent an average of 73 percent of total spending over a variety of types and sizes of UK malls). The number classified in the higher socio-economic groups of managerial, administrative, professional, supervisory or clerical (ABC1 on the UK JICTAR scale) was 57 percent. This compared, for example, with this mall owner's own data of 63 percent and other typical in-town UK malls down to 55 percent (e.g. Hounslow, again from the mall owner's data). The proportion in the older age groups of 45 years and over was 51 percent (in line with the mall owner's expectations of 'around 50 percent'). It was therefore considered that the range of socio-economic groupings and age profiles were as representative as practicable of shoppers at the mall.

As malls and other shopping areas differ in so many ways we followed the approach of McGoldrick and Thompson (1992) in providing a control and comparative data for the modelling, by requiring respondents to similarly rate an alternative shopping location. Following Dennis and colleagues (2002), the control alternative destination was the one at

which respondents shopped most (or next most after the Delphi). As none of the alternative locations was equipped with CAN screens, our results measured the actual attributes, including CAN screens, on which real shoppers made choices between actual competing shopping locations.

[Insert Table 4]

Results

Firstly, we elicited compound variables. Previous researchers have validated psychometrically the specific variables that we hypothesized from theory. The variables were either: (i) difference scores (e.g. for emotional states – Alternative shopping location subtracted from Delphi with 5 added to ensure always positive) or (ii) relative scores (e.g. Spending – proportion of total expenditure at the Delphi compared to the respondent's Alternative shopping location), scaled 0 to 1. We dropped a small number of items which were inconsistent with items in the same dimension (Table 4).

The Cronbach alpha values were above the limit of 0.5 for exploratory research (Davis and Consenza, 1988). Arousal was marginal at 0.53 indicating a possibility that arousal may be multi-dimensional but on balance, we decided to retain this variable because of the expected conditional interaction between pleasure and arousal. Previous researchers have validated the Arousal scale as psychometrically sound, notably Mehrabian and Russell; and Foxall. Nevertheless, additional research that validates the Arousal dimension in new situational contexts is highly desirable. Other independent variables all had good alpha values above 0.8.

We used Maximum Likelihood estimation to fit the models using the SPSS Amos structural equations programme. First, our model had a good fit with TLI = 0.98 (Bollen and Long, 1993) but one path was not significant: **H1b**: CAN screens – Image of shops and products ($p = 0.43$). In addition, another path was only marginally significant: **H1d**: Image of mall environment – Arousal ($p = 0.06$). Overall, these results support the MR model,

hypothesis H1: a manipulable stimulus such as a CAN positively influences shoppers' perceptions of image, which positively influences shoppers' moods and in turn positively influences approach behaviors.

The path from CAN directly to pleasure was also significant, supporting an aspect of CE, hypothesis H2: a manipulable stimulus such as a CAN positively influences shoppers' pleasure mood, which in turn positively influences approach behaviors.

Thus, a stimulus such as a CAN increases Pleasure both directly and through Image of the mall environment. Through Pleasure, both routes increase Approach. The direct path between the CAN screens and Approach we confirmed to be non-significant. The effect of the CAN screens acted only through Image of the mall environment and Pleasure, not directly [3].

We removed the non- and marginally- significant paths H1b and H1d and re-ran the model. This final model had a good fit with TLI = 0.98 and other measures: RMSEA = 0.045 (95 percent confidence 0.02 to 0.07 – Browne and Cudek, 1993); GFI = 0.99 (Joreskog and Sorbom, 1988); AGFI = 0.96 (Diamantopoulos, 1994); CFI = 0.99 (Bentler, 1990).

[Insert Figure 2 and Table 5 here]

Figure 2 and Table 5 illustrate and summarize the hypotheses testing for the final model. Each path had a positive beta coefficient and was significant (p = 0.05 or better). Considering sub-hypotheses individually, firstly H1a, the CAN content included information about mall opening hours and facilities and made a significant positive contribution to the Image of the mall environment. Similarly, for H2, the CAN content included pleasant scenes and music and made a small but significant contribution to shoppers' Pleasure. Turning to H1b on the other hand, the CAN content included information about the stores, products and special offers but did not contribute directly significantly to shoppers' Image of the stores and products. H1c indicated an indirect influence: the Image of the mall environment (influenced

by the CAN) was strongly associated with the Image of stores and products. The Image of the mall environment (influenced by the CAN) did not directly significantly influence Arousal (H1d not supported). H1e demonstrated an indirect influence: the Image of stores and products was strongly associated with Arousal. Stores and products aroused respondents more than did the CAN or the mall.

Similarly, shoppers Pleasure was influenced by the Image of stores and products (H1f); and by: Arousal (H1g); and Image of the mall environment (H1j) (as well as by the CAN, mentioned above, H2). Pleasure in turn (which was also influenced by the Image of the mall environment and the CAN) strongly influenced Approach behaviors (H1h) that were also strongly influenced by the Image of stores and products (H1i). The main influences on shoppers' Approach behaviors such as spending were: Pleasure; and Image of stores and products. Arousal had an influence mediated by Pleasure, consistent with the conditional interaction hypothesized. Similarly, the image of the mall environment also influenced Approach behaviors, but this influence was indirect, mediated by Pleasure. In summary, the influence of the CAN stimulus was small but significant, acting through the image of the mall environment and through Pleasure [4]. Putting the size of the effect of the CAN into perspective, we estimate that the CAN has less influence on Approach than do cleanliness, security and helpfulness of staff; but more than the mall's layout, toilets, or the range of merchandise available.

Discussion, conclusions and implications

Atmospheric stimuli may directly increase pleasure and thus, indirectly, approach behaviors. The stronger effect appeared to be that improving the image of the mall increased pleasure, which in turn increased approach behaviors. The results are consistent with the MR model that has been frequently supported for stores (e.g. Donovan *et al.,* 1994; Mehrabian and Russell, 1974; Sherman and Smith, 1987). However, previous application of the model in

shopping malls has been sparce, but our results are consistent with previous work on airport malls (Newman, 2002). Our results appear to be consistent with those of Chebat and Michon (2003), even though those authors took a different theory framework (CE) to be central (whereas CE is peripheral to our model). The difference between the results of the two studies leads to the speculation that a CAN may be more effective than, for example, aroma, in influencing pleasure (Chebat and Michon, 2003 also hypothesized this path but their results did not support it), and through pleasure, approach behaviors. Nevertheless, the effect of the CAN is stronger through mall image than through pleasure. A stimulus such as a CAN acts through both routes to increase approach behaviors such as spending. Rephrasing, people who are in a good mood when they set out shopping may have a better image of a mall, gaining more pleasure from the experience and spending more (consistent with Newman, 2002). The stronger effect, though, is that sensory stimuli and perception of mall image attributes can positively enhance shoppers' moods leading to more spending. These results extend previous findings for stores (e.g. Sherman and Smith, 1987) to malls: management-manipulable atmospheric cues can lead to shoppers spending more. Previous research has indicated the effectiveness of only few sensory stimuli significantly associated with increased spending (e.g. aroma – Chebat and Michon, 2003; and music – Mattila and Wirtz, 2001, in a store setting rather than a mall). This study has added a new stimulus, a CAN, as an important tool that mall owners may utilize. Atmospheric stimuli such as a CAN should be designed to increase shopper pleasure (for example pleasant scenes), and improve the image of the mall (for example with information about the benefits). Our results indicated no need for high arousal such as high volume, fast tempo music.

Given the competitive nature of malls, and the considerable economic pressure expected in the future, market-oriented operators will make differential changes to the total proposition to survive. In addition to changes to the retail mix, a successful retail strategy necessitates continuous realignments to a range of tangible and intangible factors (such as

atmosphere) in line with customer expectations. We presented a number of hypotheses that tested the notion that a CAN could positively influence consumers' perceptions of the retail setting under test. Moreover, we argued that in some situations consumers could well experience positively charged moods, leading to increased spending. A key finding was the degree to which the CAN created Approach behavior, and the effect this had on like-for-like retail sales. The greatest benefit for both the mall operator and the retailers was the increased 'dwell time' (see Newman, 2002). Mall management can control the retail setting and generate the rules that influence customer behavior (see Branthwaite 1984). In this research, we have presented a means with which to *regulate* mall atmosphere with the application of theory derived from environmental psychology models.

Although mall management take on the responsibility for attracting consumers, they are not liable for the conversion rates of individual retailers. When management's marketing efforts succeed in improving conversion and an uplift in like-for-like retail sales, an increase in tenant occupation is likely. The results demonstrate higher levels of Approach behavior (raised by an estimated 1.5 percent), equivalent to increased levels of spend or like-for-like retail sales. Achieving the same result through improvements to design, décor and extensions could cost a regional mall over $20 million. The installation of the CAN had a manipulable effect on the internal surroundings leading to increases in consumers' image perceptions of the mall. The magnitude of the effect of the CAN may sound small, but should be viewed in the light of our estimate that, at least in the long term, the improvement in sales figures could be worth around $1 million in extra rental income for a regional shopping mall.

This study has established a strong link between mood inducing technology and image attributes and mall/retailer performance. Moreover, this work has contributed to the sphere of retail and mall strategies. The findings have demonstrated that a strategic emphasis on functional attributes like parking and rest room facilities alone is insufficient in a modern society. Only the integration of a full range of marketing communication activities, or market-

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orientated approach is likely to inspire contemporary consumers. This study has provided the basis for more precise targeting and leads to quality marketing orientation and retailer image development. Differentiating a mall from competitors is a difficult task and researchers need to evaluate the degree to which individual on-screen images can contribute, and how these vary within consumer groups.

Finally, this work has been exploratory. Researchers need to determine the generalizability to a wider range of malls and other atmospheric stimuli. In the interests of parsimony, we do not include marginally significant paths in our final model. Future research with larger samples is required to investigate whether a more complex model is justified.

Notes

1. Some researchers (e.g. Holbrook and O'Shaughnessy, 1984: Huang, 2004) hypothesize that the influence of arousal on pleasure is non-monotonic in that an intermediate level of arousal might be preferred to high (or low) arousal. To check for this effect, we fitted a second-order curve to our observed relationship between pleasure and arousal. The fit is slightly better than linear (R^2 0.25 *vs.* 0.23) indicating a slight tailing off of the effect of arousal at higher values. Nevertheless, as the curve (Pleasure = $-0.77\text{Arousal}^2 + 1.31\text{Arousal} + 0.026$) does not reach a maximum within the range of our observations, for the sake of simplicity we retain our linear hypothesis.

2. Dominance distinguishes only open/closed settings and not approach/avoidance (e.g. Foxall and Greenley, 2000; Foxall and Soriano, 2005). Therefore, we do no not hypothesize dominance in our model of Approach. Nevertheless, we included this dimension in the data gathering, following the approach taken by Newman *et al.* (2002) (and eventually we confirmed no significant association with Approach).

3. Chebat and Michon (2003) use the CE model to argue against the mediating effects of mood in the atmosphere-perception relationship, presenting results that indicate that mood contributes very little to approach. Even so, their results indicate that their stimulus (aroma) does impact significantly on perceptions of products and mall environment, which we consider to support the MR model. As a check on our results, we evaluated an alternative model based on Chebat's and Michon's (2003) interpretation of CE, in which pleasure and arousal moods were held to influence mall; and shops & products images, rather than the other way round. This model had a barely acceptable fit (TLI = 0.90), indicating a preference for our MR-based model. The path from CAN to arousal was only marginally significant (p=0.06).

4. In the modelling of results, we represent the CAN variable by the single item: 'What do you think of the screens overall?'. This was because we do not hypothesize multiple aspects of the CAN to be represented by a single variable. Nevertheless, to collect potentially useful information on perceptions of the CAN, we also gather data on 10 separate aspects: (i) Product/price information; (ii) Brand advertising; (iii) Information about the shops; (iv) Entertainment; (v) Pleasure; (vi) Community information; (vii) Information about special events; (viii) Locations of the shops; (ix) Easy to see; and (x) Sound. Even though not necessarily justified as such by theory, items (i) to (ix) represent a consistent variable (alpha = 0.93 after dropping item (x)). Therefore, we re-

ran the final model using the compound variable ((i) to (ix)) in place of the single-item CAN variable. The model was mostly identical (TLI unchanged at 0.98), apart from the paths from the CAN. The path, CAN – Pleasure was not significant ($p = 0.19$). On the other hand, the path, CAN – Image of mall environment, was stronger that with beta 0.159 ($p = 0.004$). Whilst adding a degree of caution for the CAN – Pleasure path, these results strengthen confidence in the form of the model and the influence of the CAN indirectly through the image of the mall environment.

Table 1

Attributes ranked by association with shopper spend at malls.

Rank		***Attribute weight***
1	General layout	11.4
2	Access by car (roads)	7.8
3	Nice place to spend time	6.7
4	Cleanliness	6.0
5	Covered shopping	4.5
6	Quality of stores	3.9
7	Shoppers nice people	3.9
8	Availability of rest rooms	3.9
9	Friendly atmosphere	3.8
10	Helpfulness of staff	3.1.

Source: Dennis *et al.,* 2002.

Table 2

Elements of independent variable dimensions

Attribute Number	***Attribute***	***Description***	***Source***
1	Quality of stores	Image: stores and products	Dennis; Finn; Severin
2	Wide selection	Image: stores and products	Finn; Severin
3	Low prices.	Image: stores and products	Finn; Severin
4	General layout	Image: shopping environment	Dennis; Severin
5	Nice place to spend time	Image: shopping environment	Dennis; McGoldrick
6	Cleanliness	Image: shopping environment	Dennis
7	Covered shopping (if weather bad)	Image: shopping environment	Dennis; McGoldrick
8	Shoppers nice people	Image: shopping environment	Dennis
9	Availability of good rest rooms	Image: shopping environment	Dennis; McGoldrick
10	Friendly atmosphere	Image: shopping environment	Dennis; McGoldrick; Severin
11	Helpfulness of staff	Image: shopping environment	Dennis; McGoldrick
12	'In-place' to go	Image: shopping environment	McGoldrick
13	Security	Image: shopping environment	McGoldrick
14	Unstimulated/stimulated	Mood/arousal/environment	Chebat; Newman
15	Calm/excited	Mood/arousal/environment	Chebat; Newman
16	Uncrowded/jam packed	Mood/arousal/environment	Newman
17	Sleepy/wide awake	Mood/arousal/environment	Newman
18	Unhappy/happy	Pleasure	Chebat
19	Annoyed/pleased	Pleasure	Chebat
20	Unsatisfied/satisfied	Pleasure	Chebat
21	Melancholic/contented	Pleasure	Chebat
22	Unimportant/important	Dominance/submissiveness	Newman
23	Guided/independent	Dominance/submissiveness	Newman
24	CAN: screens overall	Atmospheric stimulus	Authors, c.f. Dubé

Table 3
Hypotheses

Number	***Hypothesis***	***Theoretical support from***
H1	**Model 1: A manipulable stimulus may positively influence shoppers' perceptions of image, which will positively influence shoppers moods, and in turn positively influence approach behaviors**	MR, Donovan
H1a	CAN positively influences shoppers' perceptions of the shopping environment of a mall	Authors c.f. Chebat
H1b	CAN positively influences shoppers' perceptions of the stores and products in a mall	Authors c.f. Chebat; Dubé
H1c	Shoppers' perceptions of the shopping environment positively influence shoppers' perceptions of the stores and products in a mall	Chebat
H1d	Shoppers' perceptions of the shopping environment positively influence shoppers' arousal	MR
H1e	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' arousal	MR
H1f	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' pleasure	MR; Ang
H1g	Shoppers' arousal positively influences shoppers' pleasure	Chebat; Huang; Wakefield
H1h	Shoppers' pleasure positively influences shoppers' approach behaviors	MR; Ang; Spies
H1i	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' approach behaviors	Chebat; Dennis
H1j	Shoppers' perceptions of the shopping environment positively influence shoppers' pleasure	MR
H2	CAN positively influences shoppers' pleasure	Authors, c.f. Chebat; Spies

Table 4

Compound dimensions

Dimension	*Element*	*Item-total correlation*
Approach	Spending	0.49
Alpha = 0.65	How long spend shopping	0.48
	Number of items bought	0.50
	Likelihood of spending more than intended	0.28
	(Frequency of shopping deleted)	
Pleasure	Happy	0.64
Alpha = 0.81	Pleased	0.65
	Content	0.68
Arousal	Excited	0.19
Alpha = 0.53	Wide awake	0.40
	Stimulated	0.44
	(Jam packed deleted)	
Image of stores and products	Quality of the stores	0.71
Alpha = 0.83	Wide selection of products	0.71
	(Low prices deleted)	
Image of mall environment	General Layout	0.63
Alpha = 0.85	Nice place to spend time	0.68
	Cleanliness	0.72
	Covered shopping	0.60
	Other shoppers nice people	0.33
	Availability of good rest rooms	0.57
	Helpfulness of staff	0.46
	'In-place' to go	0.58
	Security	0.48
	(Friendly atmosphere deleted).	

Table 5

Hypotheses test results

		β	*p*	
H1	**Model 1: A manipulable stimulus may positively influence shoppers' perceptions of image, which will positively influence shoppers moods, and in turn positively influence approach behaviors.**			Mainly supported
H1a	CAN positively influences shoppers' perceptions of the shopping environment of a mall	0.13	0.02	Supported
H1b	CAN positively influences shoppers' perceptions of the stores and products in a mall		NS	Not supported
H1c	Shoppers' perceptions of the shopping environment positively influence shoppers' perceptions of the stores and products in a mall	0.62	***	Supported
H1d	Shoppers' perceptions of the shopping environment positively influence shoppers' arousal		NS	Not supported
H1e	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' arousal	0.42	***	Supported
H1f	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' pleasure	0.17	0.007	Supported
H1g	Shoppers' arousal positively influences shoppers' pleasure	0.32	***	Supported
H1h	Shoppers' pleasure positively influences shoppers' approach behaviors	0.20	***	Supported
H1i	Shoppers' perceptions of the stores and products in a mall positively influence shoppers' approach behaviors	0.29	***	Supported
H1j	Shoppers' perceptions of the shopping environment positively influence shoppers' pleasure	0.28	***	Supported
H2	CAN positively influences shoppers' pleasure	0.09	0.05	Supported.

*** Significant at $p < 0.001$
NS Not significant at $p = 0.05$ (in the original Model 1 in which these paths were included)

Figure 1 Hypothesized Model

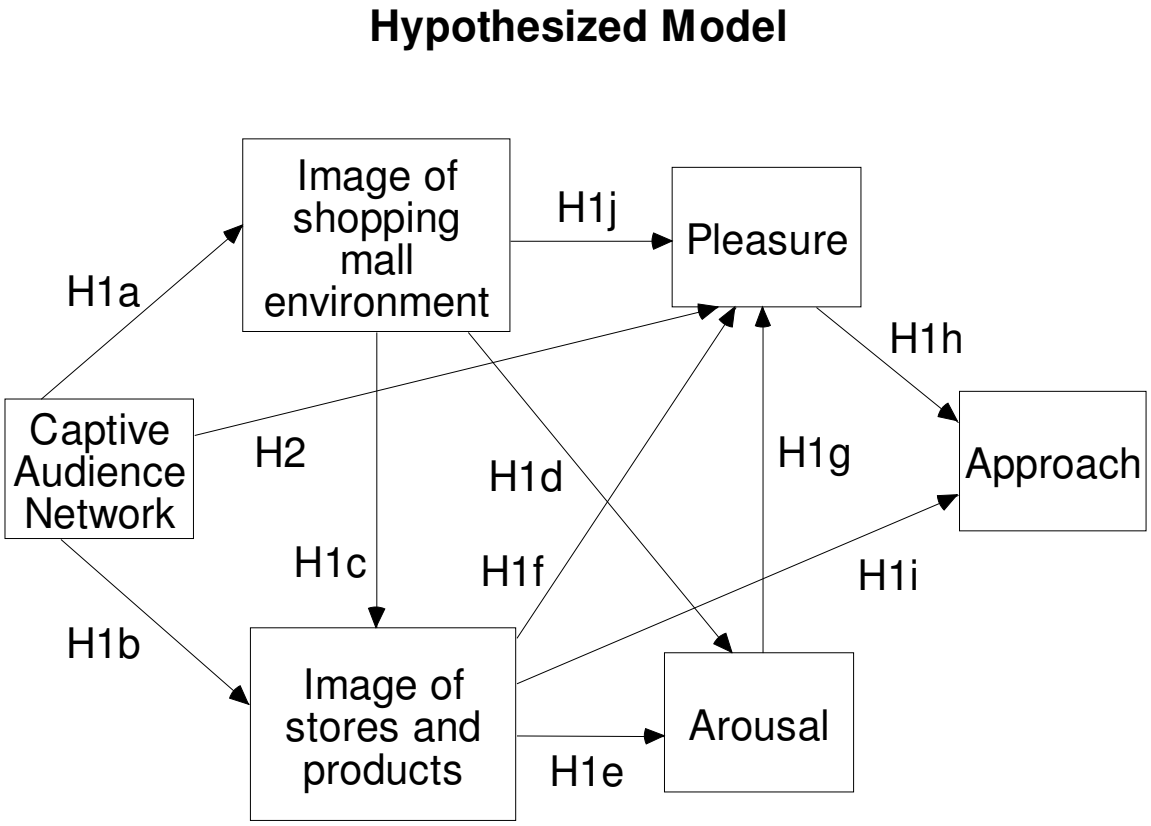
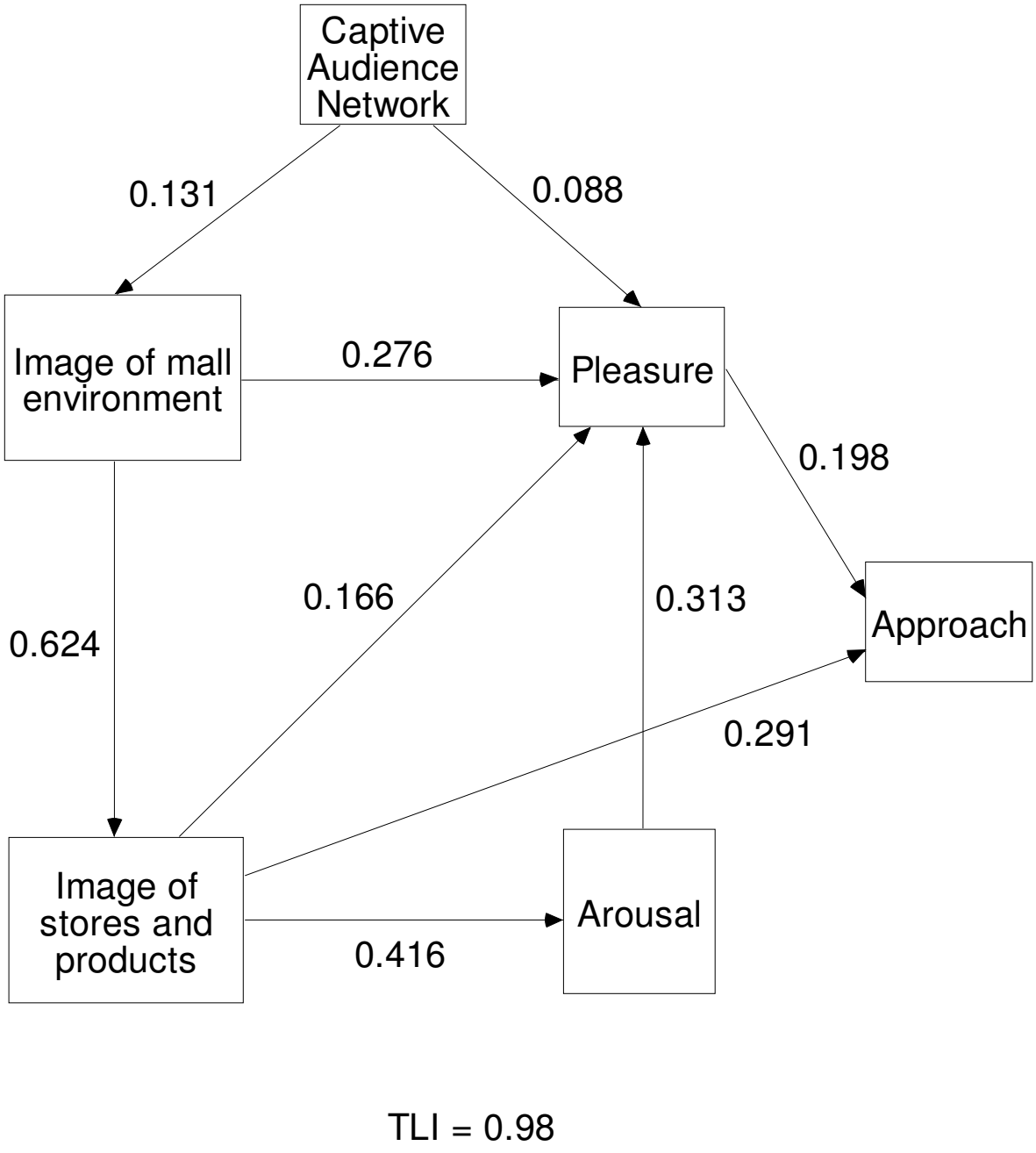


Figure 2 Final Model



References

Ang S H, Leong S M and Lim J (1997) 'The mediating influence of pleasure and arousal on layout and signage effects', *Journal of Retailing and Consumer Services,* 4 (1): 13-24.

Arentze T A, Opewal H and Timmermans H J P (2005) 'A multipurpose shopping trip model to assess retail agglomeration effects', *Journal of Marketing Research,* 42 (1): 109.

Babin B J, Darden W R and Griffin M (1994) 'Work and/or fun: measuring hedonic and utilitarian shopping value, *Journal of Consumer Research,* 20: 644-656.

Belk R W (1975) 'Situational variables and consumer behavior', *Journal of Consumer Research,* 2: 157-164.

Bentler P M (1990) 'Comparative fit indexes in structural models', *Psychological Bulletin,* 107: 238-246.

Bentler P M and Chou C P (1987) 'Practical issues in structural modelling', *Sociological Methods and Research,* 16: 78-117.

Berry L L (1969) 'The components of department store image: a theoretical and empirical analysis', *Journal of Retailing,* 45 (1): 3-20.

Bollen K A and Long J S (eds.) (1993) *Testing structural equation models* Newbury Park, CA: Sage.

Boulding K E (1956) *The Image,* Ann Arbor, University of Michigan.

Bitner, Mary Jo (1992), 'Servicescapes: the impact of physical surroundings on customers and employees'. *Journal of Marketing*, 56 (April), pp. 57-71.

Branthwaite A (1984) 'Situations and social actions: applications for marketing of recent theories in social psychology', *Journal of the Market Research Society,* 25: 19-38.

Browne M W and Cudek R (1993) 'Alternative ways of assessing model fit', in *Testing Structural Equation Models,* Bollen K A and Long J S (eds.), Newbury Park, CA, Sage.

Bush A J and Hair J F (1985) 'An assessment of the mall intercept as a data collection method', *Journal of Marketing Research,* 22 (2): 158-167.

Chebat J-C and Michon R (2003) 'Impact of ambient odors on mall shoppers' emotions, cognition and spending: a test of competitive causal theories', *Journal of Business Research,* 56: 529-539.

Clarke R (2003) 'Question: when is a retailer not a retailer? Answer: when it's a media owner', *The European Retail Digest,* 38: 20-23.

Davis D and Conseza R M (1988) *Business Research for Decision Making,* 2nd edition, PWS-Kent, Boston, MA.

Dellaert G C, Arentze T A, Bierlaire M, Borgers A W J and Timmermans H J P (1998) 'Investigating consumers' tendency to combine multiple shopping purposes and destinations', 35 (2): 177-189.

Dennis C E, Murphy J, Marsland D, Cockett W and Patel T 2002: 'Measuring image: mall case studies', *International Review of Retail, Distribution and Consumer Research*, 12 (4): 353-373.

Diamantopoulos A (1994) 'Modelling with LISREL: a guide for the uninitiated', *Journal of Marketing Management,* 10: 105-136.

Donovan R J, Rossiter J R, Marcoolyn G and Nesdale A (1994) 'Store atmosphere and purchasing behavior', *Journal of Retailing,* 70 (3): 283-294.

Dubé L and Morin S (2001) 'Background music pleasure and store evaluation: intensity effects and psychological mechanisms', *Journal of Business Research,* 54 (2): 107-113.

Finn A and Louviere J J (1996) 'Mall image, consideration and choice: anchor store contribution, *Journal of Business Research,* 35: 241-251.

Foxall G R and Greenley G E (2000) 'Predicating and explaining responses to consumer environments: an empirical test and theoretical extension of the behavioural perspective model, *Service Industries Journal,* 20 (2): 39-63.

Foxall G R and Soriano M Y (2005) 'Situational influences on consumer's attitudes and behaviour', *Journal of Business Research,* 58 (4): 518-525.

Gardner M P (1985) 'Mood states and consumer behaviour: a critical review' *Journal of Consumer Research,* 12: 281-300.

Gentry J W and Burns A C (1977) ' How 'important' are evaluative criteria in shopping center patronage?', *Journal of Retailing,* 53 (4): 73-86.

Hackett P M W and Foxall G R (1994) 'A factor analytic study of consumers' location specific values: a traditional high street and a modern shopping mall', *Journal of Marketing Management,* 10: 163-178.

Hildebrandt L (1988) 'Store image and the prediction of performance in retailing', *Journal of Business Research,* 17: 91-100.

Holbrook M B and O'Shaughnessy J (1984) 'The role of emotion in advertising', *Psychology in Marketing,* 1: 45-64.

Howard E (1992) 'Evaluating the success of retail out of town shopping centres', *The International Review of Retail, Distribution and Consumer Research,* 2 (1) 59-80.

Huang M-H (2004) 'Romantic love and sex: their relationship and impacts on Ad Attitudes, *Psychology and Marketing,* 21 (1): 53-73.

Jones M A (1999) 'Entertaining shopping experiences: an exploratory investigation', *Journal of Retailing and Consumer Services,* 6: 129-139.

Joreskog K G and Sorbom D (1988) *LISREL 7: A Guide to the Program and Applications*, Chicago, SPSS.

Lazarus R S (1991) *Emotion and Adaptation,* New York, Oxford University Press.

Lindquist J D (1974) 'Meaning of image: a survey of empirical and hypothetical evidence', *Journal of Retailing,* 50 (4): 29-38, 116.

McGoldrick P J and Thompson M G (1992) 'The role of image in the attraction of the out of town Mall', *The International Review of Retail, Distribution and Consumer Research*, 2 (1): 81-98.

Machleit K A and Mantel S P (2001) 'Emotional response and shopping satisfaction: moderating effects of shopper attributions', *Journal of Business Research,* 54: 97-106.

Martineau P (1958) 'The personality of the retail store', *Harvard Business Review,* 36 (1): 47-55.

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): 273-289.

Mehrabian A and Russell J A (1974) *An Approach to Environmental Psychology,* Cambridge (MA), MIT Press.

Newman A J (2002), 'Some manipulable elements of the service setting and their impact on company image and reputation', *International Journal of New Product Development and Innovation Management,* 4 (3): 287-304.

Newman A J and Foxall G R (2003) 'In-store customer behavior in the fashion sector: some emerging methodological and theoretical directions' *International Journal of Retail and Distribution Management,* 31 (11): 591-600.

Newman A J and Patel D (2004) 'The Marketing directions of two fashion retailers'. European Journal of Marketing (special issue: Fashion Retailing) 38 (7/8).

Nowell C and Stanley L R (1991) 'Length-biased sampling in mall intercept surveys', *Journal of Marketing Research,* 28 (4): 475-480.

Parsons A G (2003) 'Assessing the effectiveness of shopping mall promotions: customer analysis', *International Journal of Retail and Distribution Management,* 31 (2): 74-79.

Russell, James A. and Pratt, Geraldine. (1980), 'A description of the affective quality attributed to environments'. Journal of Personality and Social Psychology, 38 (2), pp. 311-322.

Severin V, Louviere J J and Finn A (2001) 'The stability of retail shopping choices over time and across countries', *Journal of Retailing,* 77 (2): 185-202.

Sherman E and Smith R B (1987) 'Mood states of shoppers and store image: promising interactions and possible behavioral effect', *Advances in Consumer Research,* 14 (1):251-254.

Sirgy M J and Cocksun S A (1989) 'The store loyalty concept: dimensions and measurement', in Cocksun S A (Ed.), *Retail Marketing Strategy,* New York, quorum.

Sit J, Merrilees W and Birch D (2003) 'Entertainment-seeking mall patrons: the missing segments', *International Journal of Retail and Distribution Management,* 31 (2): 80-94.

Smith R B and Sherman E (1993) 'Effects of store image and mood on consumer behavior: a theoretical and empirical analysis, *Advances in Consumer Research,* 20 (1): 631.

Soriano M Y and Foxall G R (2002) 'A Spanish translation of Mehrabian and Russell's emotionality scales for environmental consumer psychology', *Journal of Consumer Behaviour*, 2, (1): 23-36.

Soriano M Y, Foxall G R and Pearson G J (2002) 'Emotion and environment: a test of the behavioural perspective model in a Latin American context', *Journal of Consumer Behaviour*, 2 (2): 138-154.

Spies K, Hesse F and Loesch K (1997) 'Store atmosphere, mood and purchasing behavior', *International Journal of Research in Marketing,* 14: 1-17.

Thomke S (2003) 'R&D comes to services', *Harvard Business Review,* April: 3-11

Turley L W and Chebat J-C (2002) 'Linking retail strategy, atmospheric design and shopping behavior', *Journal of Marketing Management,* 18: 125-144.

Turley L W and Milliman R E (2000) 'Atmospheric effects on shopping behavior: a review of the experimental evidence', *Journal of Business Research,* 49 (2): 193-211.

Wakefield K L and Baker J (1998) 'Excitement at the mall: determinants and effects on shopping response', *Journal of Retailing,* 74 (4): 515.

Yoo C, Park J and MacUnnis D J (1998) 'Effects of store characteristics and in-store emotional experiences on store attitude', *Journal of Business Research,* 42 (3): 253-263.