

SERVICE WITH A CITRIC NOTE:

**The Interaction Effect of Background Music and Ambient Scent
on the Perception of Service Quality**

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Abstract

The authors study *in situ* the mediating effects of mall atmospherics (ambient odors and music) on shoppers' perception of service quality. They also examine how mall atmospherics are processed through consumers' emotions and perception of their environment. Findings indicate that slow tempo music influences shoppers' positive affect, while fast tempo music and ambient odors mediate shoppers' perception of the mall environment. Positive affect impacts the perception of service quality through the perception of the mall environment. Low arousing atmospheric variable combinations are likely to mediate emotions. High arousing cues stimulate cognition. Fast tempo background music and arousing citrus ambient scent have the strongest indirect effect on the perception of service quality.

Key words:

Atmospheric cue, congruence, interplay, mall, music, odor, retail atmospheric, shopping center.

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The Call of the Mall

About 50 percent of all non-automotive retail sales are taking place in shopping centers (ICSC, 2003). Similar to retail atmospherics, the mall environment must be viewed as an extension of Theodore Levitt's (1980) augmented product concept. The shopping mall is part of the meta-packaging of merchandise. Product attributes, packaging, display, retail atmospherics, and the mall environment are nested in each other as matryoshka dolls to help trigger sales. Literature on the servicescapes (Bitner, 1986, 1990, and 1992) and retail atmospherics (Baker et al., 1994, 1998, 2002) clearly associates the environment with service quality.

Many irritants have hampered the growth of enclosed shopping malls. Too many malls look alike and offer too many stores with highly similar merchandise. Time poor consumers make fewer shopping trips. The mall shopping experience is giving way to mall boredom (Lowry, 1997; Wakefield and Baker, 1998). At the same time, rising power centers are drawing on bargain hunting and rushed consumers (Kimball, 1991; Reynolds, Ganesh and Lockett, 2002). Power centers have allowed some retail chains to effectively compete against mall stores through lowered rents and overhead costs, and enabled consumers to park right next to store entrances (Levy and Weitz 1998). Yet, for those consumers in search of service quality, the shopping mall has a definite edge over power centers.

There has been very little research on how consumers perceive, experience, or respond to the mall's environment. Some studies have noted that the physical facility can have an impact on the shopping center's image (Nevin and Houston, 1980; Finn and Louviere, 1996). Bloch, Ridgway and Dawson (1994) observed that while in malls, consumers undertake activities unrelated to the acquisition of goods and services and which can only be described as experiential consumption. Wakefield and Baker (1998) found that the physical environment of the mall generates an emotional response in shoppers and can positively influence both the excitement consumers feel and their desire to stay in a mall. They suggest that all environmental factors, with the exception of the ambient lighting and temperature, are positively associated to excitement or desire to stay at the mall, or to both. Chebat and Michon (2003) underscored that a pleasing ambient scent in a mall had significant effects on the perception of product quality and on consumer spending. At present, there is too little research on shopping malls to be able to elaborate a theory on the mall environment. Researchers have to extrapolate findings from retail atmospherics to malls. This is not without danger: what is true for a specific store with limited product lines may not apply to a full mix of stores in a shopping mall. For example, product-related scent may be effective to increase the sales of a particular product (Bone and Jantrania, 1992), but also hurt the sales of other products (Spangenberg, Crowley, and Henderson, 1996; Fiore, Yah and Yoh, 2000; Mitchell, Kahn and Knasko 1995).

This paper studies *in situ* the mediating effects of mall atmospherics (ambient odors and music) on shoppers' perception of service quality. It also examines how mall atmospheric are processed through consumers' emotions and perception of their environment. Its contribution is unique in many ways. Atmospheric cue manipulations do not take place in a laboratory setting but in the real world of a community shopping mall. The authors manipulate two variables at once and examine interplays. Finally, they investigate channels by which atmospheric cues impact on the perception of service quality.

Retail atmospherics

The importance of the physical environment in a retail setting has long been recognized (Bitner, 1990 and 1992; Baker, Grewal and Parasuraman, 1994; Baker, 1998; Baker, Parasuraman, Grewal, and Voss, 2002). In this regard retailing seems to be undergoing a shift in emphasis from focusing on the breadth, depth and quality of merchandise to creating a pleasant shopping environment (Sherman, Mathur and Smith, 1997).

Over thirty years of academic research clearly demonstrate the nature of the influence the retail environment can have on consumer perceptions and behavior. The ability to modify in-store behavior through the creation of an atmosphere has been acknowledged by many retail executives and retail organizations (Turley and Chebat, 2002). In a review of some 60 experiments that manipulated portions of a store's complex atmosphere, Turley and Milliman (2000) remark that each of these studies uncovered some statistically significant relationship between atmospherics and shopping behavior.

Turley and Milliman's (2000) review highlights a range of shopping behaviors that retailers can influence, and the diversity of retail formats in which these studies have taken place. Consumer responses induced by changes in atmospheric variables include increased sales due to effective exterior store windows (Edwards and Shackley, 1992), the effect of lighting on the number of items handled by shoppers (Areni and Kim, 1995), store layout on price perceptions (Smith and Burns, 1996), merchandise arrangement on purchase intentions in a wine store (Areni, Duhan and Kieker, 1999), the impact of music on sales (Gulas and Schewe, 1994, Milliman, 1982), and the influence of ambient scents on consumer spending (Chebat and Michon, 2003).

In addition to in-store behaviors, the retail environment has an impact on an array of consumer emotions and attitudes among which the effect of crowding on shopper satisfaction (Machleit, Kellaris and Eroglu, 1994), the mediating effect of the environment on the affective reactions of department store shoppers (Sherman, Mathur and Smith, 1997), the influence of color on furniture store displays (Babin, Hardesty, and Sutter, 2003; Bellizzi, Crowley and Hasty, 1983; Bellizzi and Hite, 1992), the impact of the general environment on store image of a card and gift store (Baker, Grewal and Parasuraman, 1994) and environment redesign on service satisfaction in a dental office (Andrus, 1986). Babin and Darden (1995) also observe that the effect of a store atmosphere might be mediated by a consumer's general shopping style thus producing various reactions from different segments of consumers.

Ambient Odors

Ambient odor is one of the elements of a retail atmosphere that has not received the interest from researchers that it probably deserves (Turley and Milliman, 2000). The perception and interpretation of odors is a complex phenomenon that involves a mixture of biological responses, psychology and memory (Wilkie, 1995). Of the five senses, smell is considered to be the most closely attached to emotional reactions since the olfactory bulb is directly connected to the limbic system in the brain, which is the seat for immediate emotion in humans (Wilkie 1995). This makes ambient odors in a retail environment an important atmospheric variable to study because fragrances are expected to have an increased likelihood of producing an emotional reaction from

consumers, in support of the environmental psychology model (Mehrabian and Russell, 1974; Donovan and Rossiter, 1982) and the servicescapes theory (Bitner, 1992)

In a study on olfaction, Bone and Ellen (1999) contend that there is little evidence to support the notion that an odor is likely to affect a retail behavior. At present, using odor as a strategic atmospheric variable is risky because odor effects are difficult to predict. In this review, they include studies which "assessed the effects of scent presence, scent pleasantness, or scent fit on mood, elaboration, affective and evaluative response, intent and behavior (i.e. time spent, information search and choice)."

Most studies on ambient scent in a retail setting have been performed in a simulated environment (Morrin and Ratneshwar, 2000; Fiore, Yah and Yoh, 2000; Spangenberg, Crowley and Henderson, 1996; Mitchell, Kahn and Knasko, 1995). Some were actually carried out in a retail environment (Chebat and Michon, 2003; Hirsch 1995; Knasko, 1989, 1993). As a whole, these studies indicate that odor can impact consumer shopping behavior, even if some of the findings have been considered mixed or inconsistent (Fiore, Yah and Yoh, 2000). For example, Spangenberg, Crowley and Henderson (1996) show that product type mediates the effect of odor on purchase intentions. Morrin and Ratneshwar (2000) also illustrate that ambient scents improve evaluations of products that are unfamiliar or not well liked. The available research has been unable to link ambient scent with emotional responses. Instead, ambient odors stimulate cognitive reactions (Spangenberg, Crowley, and Henderson, 1996; Chebat, Michon, 2003).

Music

Music is one of the very first atmospheric elements that attracted researchers' interest and has been shown to impact consumer behaviors (Milliman, 1982 and 1986). Music styles and tempos influence sales in supermarkets (Gulas and Schewe, 1994; Herington and Capella, 1996; Milliman, 1982), sales in wine shops (Areni and Kim, 1993; North, Hargreaves and McKendrick, 1999), sales in a restaurant (Milliman, 1986), and impulse purchasing in department stores (Yalch and Spangenberg, 1990). In addition to increased retail sales, music mediates emotional responses to waiting in banks (Hui, Dubé and Chebat, 1997), store evaluation (Dubé and Morin, 2001), and in-store selling (Chebat, Gélinas-Chebat, and Vaillant, 2001).

The environmental psychology model (Mehrabian and Russell, 1974; Donovan and Rossiter, 1982) hypothesizes that music affect approach-avoidance behaviors through emotional response (Yalch and Spangenberg, 1990; Chebat, Gélinas-Chebat and Filiatrault, 1993; Dubé, Chebat, and Morin, 1995). Other studies suggest that music stimulate cognitive processes through arousal, cue congruence, memories, familiarity and meaning (Kellaris, Cox and Cox, 1993; MacInnes and Park, 1991; Chebat, Gélinas-Chebat, and Vaillant, 2001).

The relationship between music and the perception of service quality is ambivalent. Pleasant music, by contrast to unpleasant music, is associated with longer consumption time (Holbrook and Anand, 1990), longer time perception (Kellaris and Kent, 1992), less negative emotional reaction to waiting with more positive service evaluation (Hui, Dubé and Chebat, 1997), and more desire to affiliate with the service provider (Dubé, Chebat, and Morin, 1995). Sweeney and Wyber (2002) conclude that slow popular or fast classical music both influence pleasure and the perception of service quality among fashion shoppers. Baker, Parasuraman, Grewal, and Voss (2002) were not able to link store musical cues to consumers' perceived interpersonal service quality. They found, instead, that music reduced shoppers' perceptions of monetary and psychic costs.

Interplay and Congruence of Atmospheric Cues

Most retail atmospheric research has been conducted using one environmental cue at a time. So far, very few retailing studies have focused on the interactive effects of atmospheric cues. The store atmosphere has been mostly studied in terms of the impact of a single atmospheric cue, music (e.g., Dubé, Chebat and Morin, 1995; Milliman, 1982, 1986; Yalch and Spangenberg, 1988, 1990) or scents (e.g., Bone and Ellen, 1999; Gulas and Bloch, 1995; Chebat and Michon, 2003; Spangenberg et al., 1996) or lighting (e.g., Areni and Kim) or crowding (e.g., Eroglu and Harrell, 1986; Eroglu and Machleit, 1990). However, the store atmosphere results from a combination of several sensorial cues.

Atmospheric variables can interact with each other, producing expected and unexpected results. Fiore, Yah and Yoh (2000) report that the effect of ambient scents may be mediated by other atmospheric elements. They found that adding a pleasant fragrance to a product display resulted in highest levels of attitude toward the product, purchase intentions, and willingness to pay higher prices. Michon, Chebat and Turley (2004) observed a negative interaction between pleasing ambient fragrances, mall density, and the perception of the mall environment. Babin, Hardesty and Suter (2003) discovered that for fashion-oriented stores blue interiors were better perceived than orange interiors. However, under soft light conditions, the negative effects of orange were neutralized.

The idea of looking at a basket of environmental cues rather than a single cue at a time is recent, and has not been deeply explored (Wakefield and Baker, 1998; Baker, Parasuraman, Grewal and Voss, 2002; Turley and Chebat, 2002). Variable manipulation and costs are the prime factors preventing multiple variable manipulations. Baker, Parasuraman, Grewal and Voss (2002) mention the difficulty and the expense of manipulating elements of the environment in a real store setting. Laboratory experiments become more affordable but certainly less realistic alternatives.

Studies suggest that, to be effective, odors should be consistent with whatever product is presently under evaluation by the consumer (Fiore, Yah and Yoh, 2000; Mitchell, Kahn and Knasko, 1995). However, the ability to match specific scents with products is much easier for single line or limited line specialty stores than it is in other retailing contexts such as department stores, discount stores or malls where product selections are broader and deeper and therefore less related.

The question raised by the very few existing studies is the following: to what extent the various cues (e.g., music and scents) should match? Mattila and Wirtz (2001) studied the interactive effects of music and scents in a retail setting. They manipulated the level of arousal of these two cues and found that increased positive affect (pleasure and satisfaction) is experienced when shoppers are exposed to a match of highly arousing scent combined with highly arousing music or to a low arousal scent combined with low arousal music than they do to either "mismatch" combination. The "mismatch" contributes to perceptual inappropriateness causing systematic changes in customer comfort level. It may be reasoned that mismatch combinations make the cues categorization cognitively uneasy and, consequently, bring about negative affect (Cohen and Basu 1987).

Another theory, the incongruity theory proposes opposite tenets: when faced with stimuli that are mildly incongruent with prior expectations, individuals will engage in more elaborative information processing (for a review, see Heckler and Childers 1992). The very process of responding to (in)congruity may itself produce some affect or arousal that might contribute to individuals' evaluations (Mandler, 1982; Meyers-Levy and Tybout, 1989). Consequently, individuals respond more affectively to moderate incongruity than they do to extreme incongruity.

In a recent empirical study reporting the effects of appropriate/inappropriate combinations of scents, décor and music in a shopping mall, Babin, Chebat and Michon (2004) found that higher appropriateness is associated with higher product quality ratings. When mall characteristics are perceived to be appropriate, respondents tend to rate products sold there as higher in quality. Likewise, higher appropriateness is associated with more positive reported affect and increased hedonic shopping value.

Research Objectives and Assumptions

In a 2 X 2 factorial experiment, we tested the influence of ambient scent and background music on shoppers' emotions, perception of mall environment, and perception of service quality. The literature is clear about the mediating effect of atmospheric cues on shoppers' behavior. However, there are apparent conflicting views about the processing of retail atmospherics. Based on this apparent ambiguity between the theoretical propositions, it is not easy to elaborate hypotheses.

The environmental psychology school (Mehrabian and Russell, 1974; Donovan and Rossiter, 1982) supports the affective processing of both ambient scent and background music to mediate approach/avoidance behaviors. Pleasant feelings are not necessarily correlated with strong arousal (Dubé, Chebat, Morin, 1995; Spangenberg, Crowley, and Henderson, 1998; Richardson and Zucco, 1989). Sweeney and Wyber (2002) highlight that slow top-40 music significantly influence perceived quality and pleasure.

- H_{1a}: Slow tempo popular music is likely to elicit consumers' positive affect.
- H_{1b}: A light and pleasing ambient scent increases consumers' positive affect.
- H₂: Consumers' mood improves perceptions of the shopping environment.
- H₃: Positive affect is expected to foster consumers' perception of service quality.

Other research has shown that ambient scent (Scholder and Bone, 1998; Morrin and Ratneshwar, 2000; Spangenberg, Crowley, and Henderson, 1996; Knasko, 1992; Ehrlichman and Halpern, 1988) and music (Dubé and Morin, 2001; Chebat, Gélinas-Chebat and Vaillant, 2001) may be perceived by consumers without a mood shift. Furthermore, under the cognitive theory of emotions (Lazarus, 1991), shoppers' evaluation of their environment is an antecedent to shopper's positive affect.

- H_{4a}: Slow tempo background music is more likely than fast music conditions to stimulate consumers' perception of the mall environment.
- H_{4b}: A light and pleasing ambient scent positively affects consumers' perception of the mall environment.
- H₅: Consumers' perception of the mall environment should favorably affect positive affect.

H₆: Consumers' perception of service quality is influenced by the perception of the mall environment.

FIGURE 1 ABOUT HERE

Research Framework and Methodology

The experiment was conducted in a community shopping mall located in the Northeast. Data were collected in four consecutive weekly waves during the months of February and March. These periods are known by the shopping mall owners to be similar in terms of sales volume and shopper traffic. Special care was taken by the mall director to cancel all special promotions by the retailers during that period.

In the control wave, the shopping mall ambient olfactory atmosphere was not modified and background music was kept at a fast tempo. There were no aggressive exogenous odors emanating from food outlets or fragrance stores. In subsequent waves, a light pleasing scent was vaporized in the mall's main corridor. The ambient scent was diffused in the shopping mall's main corridor located between two major retailers. Some 10 diffusers released a citrus scent for 3 seconds every six minutes, thus maintaining continuous scent intensity.

For ambient odor manipulation, a citrus scent (a combination of orange, lemon and grapefruit) was chosen. The scent category scored well with Spangenberg, Crowley, and Henderson's (1996) pre-test, and was also available from vendors. Citrus is significantly different from lemon. People readily associate the smell of lemon with cleaning products (Bone and Jantrania, 1992). Furthermore, the scent was not congruent with any specific products sold in the shopping center, as recommended by Spangenberg, Crowley and Henderson (1996).

In the control music condition, the tempo was set by the music provider (Muzak) at 96 bpm. In the second condition, the tempo was set (also by the music provider) at 60 bpm. In both cases, the musical genre remained "light rock", included in the category called "familiar adults contemporary favourites". The volume was set at the same levels in both music conditions.

Graduate marketing students, who were asked not to wear perfume, were responsible for the administration of questionnaires. Sampled individuals were not aware of the research objectives. They were simply invited to fill in a self-administered questionnaire on their shopping trip. Data collection covered all weekdays and day parts for adequate representation. The control group (fast tempo music and no ambient scent treatment) was made up of 447 subjects. Some 145 were exposed to fast tempo music and a citrus ambient odor. Another 144 individuals were subjected to slow tempo music with no special ambient odor. Finally, 255 participants were exposed to slow tempo music and the citrus ambient scent.

Females participants were unevenly distributed across the four experimental cells ($\chi^2 = 16.06$, $df = 3$, $pr = .001$), ranging from 55 percent in the fast music tempo/control odor to 70 percent in the slow music tempo/control odor (Table 1). Other socio-demographic features appear to be better balanced. The median age varied from 39 years in the slow tempo music/control odor to 43 years in the fast tempo music/citrus odor ($\chi^2 = 6.59$, $df = 3$, $pr = .086$). The majority of participants was married ($\chi^2 = 4.99$, $df = 3$, $pr = .172$) and had a post-secondary formal education ($\chi^2 = 5.22$, $df = 3$, $pr = .157$). Median income fluctuated from 38,000 dollars in the slow music tempo/control odor to 47,800 in the slow music tempo/citrus odor ($\chi^2 = 6.94$, $df = 3$, $pr =$

.074). There were no concentrations of young or old participants with different olfactory or auditory sensitivities.

TABLE 1 ABOUT HERE

To illustrate the cognitive and affective paths of ambient scent and background music, structural equation modeling (SEM) was used (EQS for Windows 6.1). Variables entering the model are described in Table 2. Shoppers' positive affect is measured from Mehrabian and Russell's (1974) pleasure component of the PAD scale (Alpha coefficient = .96). The perception of the shopping mall environment is captured with a selection of Fisher's (1974) semantic differentials (Alpha coefficients = .92). Only the most relevant items from Fisher's semantic differentials (1974) and from the Mehrabian and Russell's (1974) pleasure scale are entered in the model. The items measuring the perception of service quality are borrowed from Cronin and Taylor (1992) (Alpha coefficient = .83). The manipulation of ambient scent and background music are represented by binary variables (e.g. Bagozzi, 1994; Bagozzi and Yi, 1989).

TABLE 2 ABOUT HERE

Research Findings

Research findings and fit statistics are available in Figure 2. As suggested in H_{1a} slow tempo popular background music impacts on shoppers' positive affect, with (beta = .32, $t = 2.19$) or without (beta = .42, $t = 2.18$) the presence of a specific ambient odor. In fact, the presence of citrus odor slightly reduces the influence of the slow background music on positive affect. Hypothesis 4b linking slow tempo music to the perception of the mall environment cannot be verified. Citrus ambient odor in conjunction with a fast tempo background music (H_{4b}) affects shoppers' perception of the mall environment (beta = .27, $t = 2.26$). Yet, when combined with slow tempo music, the ambient odor fails to significantly affect mall perception.

Shoppers' positive affect has no direct meaningful influence over the perception of service quality. Shoppers' emotions moderate mall perception (beta = .20, $t = 8.02$). In turn, shoppers' perception of the mall environment moderates the perception of service quality (beta = .48, $t = 15.41$).

FIGURE 2 ABOUT HERE

The tested maximum likelihood model ($\chi^2 = 100.33$, $df = 58$) offers good support. Its standardized root mean-square residual (RMR) is 0.25 and the root mean-square error of approximation (RMSEA equals .029, well within all accepted standards on SEM. When the path between positive affect and mall perception is reversed, the model slightly loses in fit quality and still fails to link positive affect to the perception of service quality.

Discussion

The influence of slow tempo music on positive affect supports the environmental psychology model (Mehrabian and Russell, 1974; Donovan and Rossiter, 1982) as well as the Servicescapes theory (Bitner, 1992). It does not support earlier findings by Dubé and Morin (2001) and by Chebat, Gélinas-Chebat and Vaillant (2001). One possible reason is that slow tempo music has little arousing power and fails to stimulate cognitive processes (e.g. Kellaris, Cox and Cox, 1993; MacInnes and Park, 1991). On the other hand, the interaction between (arousing) fast tempo music and citrus ambient odor triggers some cognitive processing through shoppers' perception of the mall environment. Citrus was specifically chosen over Lavender for its arousing properties (Spangenberg, Crowley, and Henderson, 1996). The four experimental cells are represented by three dummy variables. We must conclude that the 0, 0, 0 situation representing fast tempo music and no specific ambient odor has no effect on mall shoppers' positive affect and perception of the mall environment. In short, we observe the main effect of slow tempo music on positive affects, and an interaction effect of fast tempo music and ambient scent on mall perception.

Cue congruence through memories, familiarity and meaning must also be considered (Kellaris, Cox and Cox, 1993; MacInnes and Park, 1991; Chebat, Gélinas-Chebat, and Vaillant, 2001). Christmas music and scent are a perfect example of thematic cue congruence (Spangenberg, Grohmann, and Sprott, 2003). Arousal congruence cannot be ignored. A low arousal scent (Lavender) combined with a slow tempo music is more likely to induce higher evaluations than with higher arousal music (Mattila and Wirtz, 2001). Here, we observe that stronger interaction between arousing fast tempo music and arousing citrus scent. As mentioned earlier, cue interaction in a shopping mall presents additional challenges because of the multiplicity of product lines and store themes (e.g. Fiore, Yah and Yoh, 2000; Spangenberg, Crowley, and Henderson, 1996).

Some atmospheric cues are more likely to mediate shoppers' affect while other will stimulate cognitive processing. Not all environmental variables behave in the same fashion. Ambient odors, despite the fact that olfactory bulb is directly connected to the limbic system in the brain (Wilkie, 1995), appear to arouse the so-called "Proustian" memory (Annett, 1996). Music may also trigger similar memories or meanings (Kellaris, Cox and Cox, 1993; MacInnes and Park, 1991; Chebat, Gélinas-Chebat, and Vaillant, 2001). In the absence of meanings or familiarity, consumers' liking of music played a more important role in explaining consumers' emotional states (Sweeney and Wyber, 2002). In short, music plays on emotions and ambient odors on cognition.

In this experiment, background music, ambient scent, and positive affect have no direct effect on consumers' perception of service quality. These variables act as mediators rather than moderators of service quality (e.g. Baron and Kenny, 1986).

Implications and Further Research

In the literature, cue congruence, fitness or appropriateness refers to the combination effect of environmental variables (e.g. Baker, 1998; Gulas and Bloch, 1995; MacInnis and Park, 1991; Mitchell, Kahn, and Knasko, 1995; Spangenberg, Crowley, and Henderson, 1996). Optimal retail effectiveness is achieved when all environmental cues—ambient, design, and social—are congruent with the retailer's overall image (Baker, 1998). However, atmospheric cues do not always interact with each other as anticipated. Managers would be well-advised not to improvise when

mixing atmospheric cues together. At the same time, they should know that the manipulation of a single environmental variable is unlikely to be sufficient.

Retailers should carefully select ambient odors and music style and tempos from their marketing toolbox. These variables are among the least expensive techniques to enhance shoppers' emotions and perceptions. Congruent scent and background music may be effective to increase the sales of a particular product (Bone and Jantrania, 1992), but may also jeopardize the sales of other products (Spangenberg, Crowley, and Henderson, 1996). Effective ambient scent should support all products in the store (Gulas and Bloch, 1995). For optimal effect, background music and ambient odors should be congruent in terms of arousal. Highly arousing atmospheric variables are likely to moderate cognition, while low arousing cues are expected to moderate emotions. It is up to retailers and mall owners to opt for the emotion or the perception path. Considering all direct and indirect effects, the combination of arousing background music and citrus scent has a stronger mediating power over the perception of service quality than low arousing music.

This experiment was conducted in a community mall. Research findings cannot be generalized to larger types of shopping centers. Regional or super-regional malls are likely to attract higher proportions of hedonic or recreational shoppers (e.g. Babin and Attaway, 2000) paying more attention to the retail environment and looking for some entertainment. Community malls draw relatively more convenience shoppers. Task-oriented shoppers may be more sensitive to other retail cues, such as retail crowding and density than non-task oriented shoppers (Eroglu and Harrell 1986).

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Figure 1: Research Hypotheses

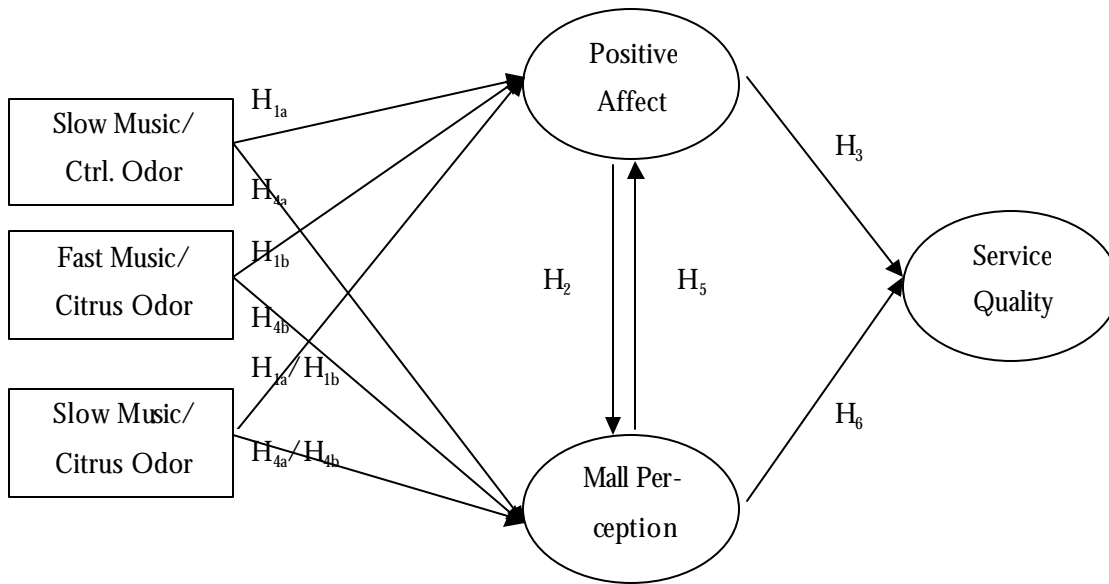


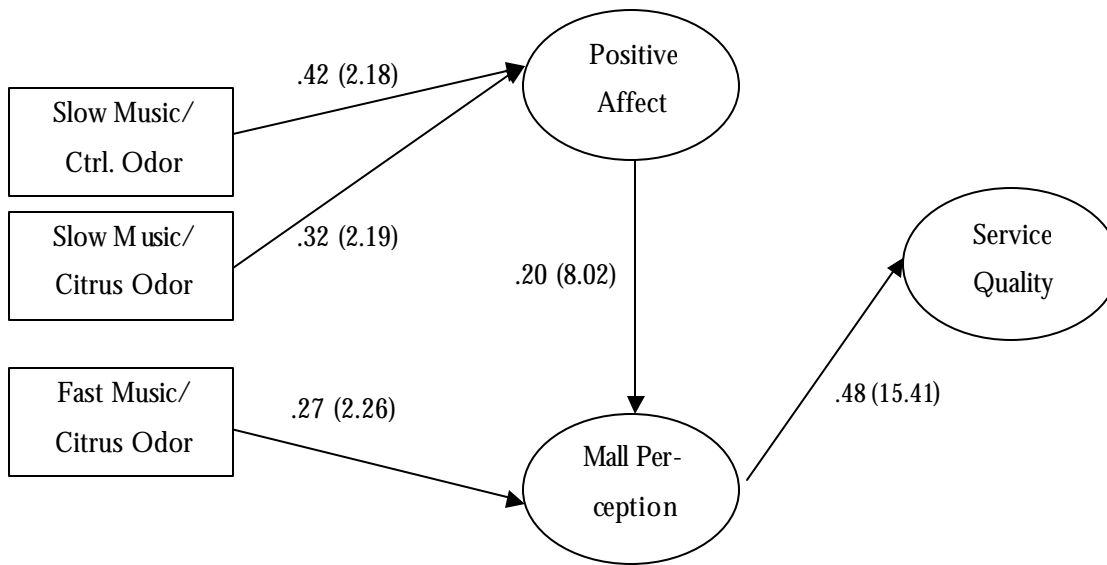
Table 1: Cohort Profile

	Fast music/ Control odor	Slow music/ Control odor	Fast music/ Citrus	Slow music/ Citrus	Cohort	c²/Pr for 3 df
Females	55%	70%	63%	67%	62%	16.06/.001
Median age	42	39	43	40	41	6.59/.086
Married	57%	51%	50%	60%	56%	4.99/.172
Education			Post-secondary			5.22/.157
Med. income	43.8	38.3	40.8	47.8	43.3	6.94/.074
Cohort	447	144	145	255	991	

**Table 2: Measurement Scales:
Factor loadings and Alpha Coefficients**

	Dimensions	Positive Affect	Mall Percept.	Service Quality
	Variance explained	35.3%	32.7%	17.1%
Positive Affect (Alpha = .96) (Selected from Mehrabian, Russell, 1974)				
Unhappy / Happy		.942	.086	.042
Annoyed / Pleased		.934	.129	.059
Melancholic / Contended		.925	.117	.075
Unsatisfied / Satisfied		.917	.128	.088
Mall Perception (Alpha = .92) (Selected from Fisher, 1974)				
Boring / Stimulating		.108	.900	.179
Dull / Bright		.141	.881	.170
Uninteresting / Interesting		.105	.870	.228
Drab/ Colorful		.114	.849	.208
Service Quality (Alpha = .83) (Selected from Cronin and Taylor, 1992)				
The quality of this shopping centre's service is Very poor/Excellent		.114	.255	.881
My feelings toward this shopping centre's services can best be described as Very unsatisfied/Very satisfied		.055	.298	.871

Figure 2: Final Model



Fit Statistics

Method = Maximum Likelihood

Chi-Square = 100.33 Based On 58 Degrees Of Freedom

Root Mean-Square Residual (RMR) = .045

Standardized RMR = .025

Root Mean-Square Error Of Approximation (RMSEA) = .029

90% Confidence Interval Of RMSEA = (.019 -- .039)
