Priloga 1:

M. Morrison (Monash University):

THE POWER OF MUSIC AND ITS INFLUENCE ON INTERNATIONAL RETAIL BRANDS AND SHOPPER BEHAVIOUR: A MULTI CASE STUDY APPROACH*

Abstract

Retailers are finding it more and more difficult to differentiate their stores based upon the traditional components of the retail mix. Retail store elements such as colour, lighting and visual merchandising have always been considered as having immediate effects on the buying decision making process. Retail stores need to be much more than just passive places that display merchandise for sale. When shoppers make purchase decisions they may respond to more than just the tangible product or service being offered. Music can be a critical component of store atmosphere and can play an important role in the purchase decisionmaking process. Published research on the impact of music on retail experience is very limited and a considerable gap in the literature exists. To determine the role that music plays in shaping retail brand and its impact on shopping behaviour, an exploratory study was conducted into several leading retail concepts including Borders Books, FAO Schwarz, Nike Town and Victoria's Secret. Key findings indicated that store atmosphere can influence the perception of the uniqueness of products and service levels, specifically programmed music can play a role in store stay and travel time and a personalised music strategy can support a retail brand and make a connection with specific target markets.

Introduction

Retailers are facing an increasingly competitive market place and as a consequence are finding it more and more difficult to differentiate their stores on the basis of product, place, people, price and promotion. Retail store elements such as colour, lighting and visual merchandising have always been considered as having immediate effects on the buying decision making process. The emphasis has moved away from in-store product displays, towards elements that excite the senses of shoppers such as flat screen videos or graphics, music, smells, lighting and flooring that tend to capture the brand image or personality and help to create a unique environment and shopping experience (McGoldrick, 1990; Marsh, 1999). The atmosphere of the shopping environment can influence customer attitudes and their perceptions in relation to the overall quality of the store in terms of the uniqueness of the product, and service levels (Baker, Grewal and Parasraman, 1994) the purchase price (Areni and Kim, 1993) and purchase volume (Milliman, 1982). Victoria Secret is a good example of this phenomenon. The playing of classical music in their stores, as contributed to a prestigious store atmosphere, leading to a customer perception of higher merchandise and service quality.

The specific atmosphere that the retailer creates, can in some cases be more influential in the decision making process than the product itself. It is the power of music that may in fact have the greatest impact on the way people make their purchase decisions. Gardner's study (1985) found that mood states can have an important influence on behaviour. A given mood state within a retail environment can increase the chances that a purchase will be made (Bruner, 1990). Music can be a critical element of a store's atmosphere (Alpert and Alpert, 1990).

The Power of Music

Music communicates with our hearts and minds; it serves as a powerful connection into our emotions. Music is versatile, it has the ability to relax or invigorate. Music is memorable, it can transport us in an instant to places we want to be (Ortiz, 1997). Retailers can use specifically

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* http://smib.vuw.ac.nz:8081/WWW/ANZMAC2001/home.htm

programmed music to create links to past experiences. Music can be a critical component of store atmosphere and plays a role in purchase decision making process (Areni and Kim, 1993; Donavan and Rossiter, 1982; Smith and Curnow, 1966). A personalised music strategy can support a retail brand and makes a powerful connection with specific target markets by incorporating customer demographics (such as age, gender mix and income levels) and psychographics (such as preferences, lifestyles, personalty and attitudes). By understanding the demographics and psychographics of its target market, retailers can create an audio environment where their customers feel comfortable, relaxed and happy to spend time and money. The use of carefully selected music creates an immediate distinction for a retail brand by establishing the right mood. Music can motivate the subconscious and create a first and lasting impression.

The Purpose Of The Study/Methodology

The purpose of this research was to determine the role that music plays in shaping retail brand and its impact on shopping behaviour. The study was exploratory in nature and forms the basis for future research. Zikmond (1991) sees three purposes for exploratory research (i) situation diagnosis, (ii) the screening alternatives and (iii) discovering new ideas (Zikmond, 1991: 103). This study was exploratory in that its aim was to provide greater insight and understanding into the link between music and retail branding. Exploratory research can be conducted into a research problem or issue when there are very few or no earlier studies. The aim of exploratory research is to search for patterns, ideas or hypotheses, rather than testing or confirming a hypothesis (Hussey and Hussey, 1997). A number of key retail brands formed the sample and included Borders Books, FAO Schwarz, Nike Town and Victoria's Secret.

Data was collected by face-to-face interviews and in-store observation in the four key USA retail cities of Dallas, Chicago, Las Vegas and Los Angeles. Face-to-face interviews were conducted in-store with sales associates and store management and out-of-store with selected shoppers.

Literature Review

A review of the literature indicates that previous research has examined various aspects of music and its impact on consumer behaviour. The effects of music tempo (Milliman, 1982,) volume (Smith and Curnow, 1966 and Yalch and Spangenberg, 1990) and genre (Baker, Levy and Grewal, 1992). Music can be a critical component of store atmosphere and plays a role in purchase decision making process (Areni and Kim, 1993; Donavan and Rossiter, 1982; Smith and Curnow, 1966). A personalised music strategy can support a retail brand and makes a powerful connection with specific target markets by incorporating customer demographics (such as age, gender mix and income levels) and psychographics (such as preferences, lifestyles, personalty and attitudes). There is much debate as to the affect of music upon the listener. Opinions vary widely whether there is any consistency of listener responses or any tangible way of measuring them. Storr says "music can certainly be regarded as a form of communication between people; but what it communicates is not obvious". (Adams, 1998; Storr, 1992). By understanding the demographics and psychographics of its target market, retailers can create an audio environment where their customers feel comfortable, relaxed and happy to spend time and money. This supports Grayston's study (1974) which put forward the premise that music must fit the situation in which it is to be used. The use of carefully selected music creates an immediate distinction for a retail brand by establishing the right mood.

Music can motivate the subconscious and create a first and lasting impression.

The Case Studies

Borders Books

The focus at Borders Books is aimed at maximising the amount of time people stay in the store. On entering a Borders Book store you immediately get the impression that you are invited to relax, choose three or four books from the enormous list of titles on offer, sit down and have a coffee or some food, take in some music and settle down and while away the hours.

The in-store music is designed to maximise customer visit time. Research has shown that if shoppers stay longer and travel more slowly throughout the store, they are likely to purchase more (Areni and Kim, 1993; Donavan and Rossiter, 1982; Milliman, 1982; Yalch and Spangenberg, 1990). The tempo of the music at Borders Books is slow and relaxed. The tempo of the music tended to alter customer perception of elapsed time in the store. This finding supports Milliman's study (1982) that found that the tempo of music can effect shoppers' pace of movement around the store. Shoppers and sales associates indicated that the soothing nature of music also helped to facilitate discussions about products and services.

FAO Schwarz

Las Vegas is home to the world's largest toy store FAO Schwarz. With 57,000 square feet of 'toy heaven,' the store is the number one attraction within the magnificent Forum Shopping Mall. The store provides a showcase for all the major toy manufacturers. The key departments such as the Mattel Barbie range and the dramatic Star Wars offering are very closely monitored to ensure the best possible in-store concepts. Complete with a gigantic three storey high Trojan horse, the store offers a shopping experience full of colour, magic, movement and music. There are three floors fulfilling every child's dream.

The store is composed of specific themes, each with its own unique music; from plush toys to electronic games, arts and crafts to magnificent dolls, an incredible Barbie store and a very exciting Star Wars department that boasts the world's only Star Wars Cantina - and of course a FAO Schweetz extravaganza offering an incredible array of candy and chocolates! Each area demonstrates the power of music in creating the right mood, excitement and atmosphere.

For example, the music playing in the Barbie section is up-tempo pop, dance and swing, creating a feeling of fun, fantasy and happiness, whereas, the music in the Star Wars department is awesome and dramatic - one can't help but be spellbound and enthralled. The music drives customers into the store. The music plays a big part in catching peoples' attention. Given the nature of Las Vegas and the focus on gambling, shopping becomes almost an afterthought. Shoppers indicated that they wanted to be enticed, excited and entertained.

NikeTown

At Nike Town, brand is everything and everything is focused at maximising the brand's potential. According to Chernatony and McDonald, 1998) brands can develop different relationships with customers. They see a successful brand as one that develops a high-quality relationship, where customers feel a sense of commitment and belonging, even to the point of passion (p: 27). When you enter the world of Nike you are exposed to total branding. The Nike brand is everywhere, on door handles, elevator buttons, floor tiles, store fittings, video screens, interactive kiosks and even the music. There is no mistaking that you are in NikeTown. Stores were visited in Chicago, Las Vegas and Los Angeles and in each store staff expressed excitement about the current music. Nike stores are multi-sensory retail environments that excite the senses with lighting effects, video monitors, gigantic pictures of famous athletes, interactive displays and powerful music.

The days of having sound effects (tennis balls bouncing or birds chirping) in specific pavilions have long gone, much to the relief of all those people interviewed. The in-store music is high on energy, vibrant, proactive and uplifting. The current music definitely boosts the store's environment and helps to attract the younger urban customer. The current music is friendlier, more inviting, gives Nike a point of differentiation from its competitors and supports the Nike brand. The interest shown in the in-store music has led to the need to provide customers with 'Nike Music' play lists.

Victoria's Secret

The atmosphere of the shopping environment can influence customer attitudes in relation to perceptions of the overall quality of the store in terms of the uniqueness of the product, service levels and price (Baker, Grewal and Parasraman, 1994). Victoria's Secret is a good example of this phenomenon. Within seconds of entering the store, you can feel a sense of elegance and style. The timing of the store visits saw the Valentine's Day promotion in full

swing. Lots of red and pink, silks, satin and lace. Very feminine, very sexy! The in-store music provided a perception of richness and grandeur. Since playing classical music in their stores, there is the belief that this has contributed to a prestigious store atmosphere, leading to a customer perception of higher quality in both merchandise and service. This finding is consistent with Yalch and Spangenberg's study (1990). Talking with store staff led to the impression that soothing music is important when engaging in conversations with customers about potential purchases. Therefore, music that facilitates discussion between individuals may be desirable where customers are likely to seek the advice of a sales associate. This is certainly relevant at Victoria's Secret, especially when men decide to enter what was once considered a strictly female only domain.

Limitations Of The Research/Future Research

There are a number of limitations with music related research. They include the collection and capture of meaningful data, isolating other environmental factors and linking music directly to consumer decision making and brand recognition. A series of field experiments need to be conducted to explore the relationship between different types of music and the impacts on retail brand and shopping behaviour. The study ideally should take place over a period of no less than thirty days and during a variety of time periods (morning, afternoon, evenings, weekdays and weekends). Various times need to be selected to meet the belief that shoppers have different purposes for shopping at different times. The focus of the research ideally should be on store stay time, customer flow and purchase decisions.

Conclusion

Stores' environments provide consumers with informational clues about the uniqueness of the merchandise and service quality and assist in shaping consumer attitudes and perceptions about the global store image. Store image and mood can be changed dramatically by the introduction of music. Music establishes the mood, helps motivate the subconscious and can create a lasting impression on existing and potential customers. The study found that specifically programmed music can play a role in the total shopping experience and can be an important tool in creating a memorable identity for specific retail brands. If the music was specifically designed to fit a particular demographic and psychographic, then customers tended to relax and stayed longer in the store.

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Priloga 2:

R. Yalch (University of Washington):

THE EFFECTS OF MUSIC IN A RETAIL SETTING ON REAL & PERCEIVED SHOPPING TIMES*

Abstract

This paper extends research linking shopping behavior to environmental factors through changes in emotional states. With time fixed or variable during a simulated shopping experiment, shoppers were exposed to music varying by degree of familiarity. Afterward, subjects reported their perceptions of shopping duration, their emotional states, and their merchandise evaluations. Analyses revealed that individuals reported themselves as shopping longer when exposed to familiar music but actually shopped longer when exposed to unfamiliar music. Shorter times in the familiar music condition were related to time misperceptions. Although emotional states affected product evaluations, these effects were not easily related to the music manipulations.

Introduction

Phil Kotler introduced the view that retail environments create atmospheres that affect shopping behavior in the *Journal of Retailing* in 1973. Although a special issue devoted to the subject (*Journal of Retailing*, Winter 1974) followed shortly, the area did not otherwise receive much attention. Donovan and Rossiter (1982) revived interest by suggesting that environmental psychology, especially Mehrabian and Russell's (1974) PAD framework, could be used productively to research store environments. Researchers subsequently analyzed retail shopping behavior with this framework and found significant relationships between emotional states and factors such as time spent in the store, propensity to make a purchase, and satisfaction with the experience (e.g., Sherman and Smith 1987; Dawson, Bloch and Ridgway 1990; Kellaris and Kent 1993; Yalch and Spangenberg 1993).

For example, Sherman and Smith (1987) interviewed shoppers immediately after a purchase and solicited responses regarding their shopping experience, their mood, and demographic characteristics. They found positive relationships between shoppers' reported mood and how favorably shoppers perceived the store, how many items they purchased, and how much time they spent in the store. Unfortunately, as a correlational study, cause and effect was indeterminate. Given the extensive psychological research showing that individuals partially judge their emotional states by their behavior (e.g., Bem 1972; Schachter and Singer 1962), the causal role of emotional reactions to environmental factors in determining shopping behaviors remains uncertain.

Experimental control of environmental factors provides a better, more controlled, test of atmospheric factors and the moderating role of subsequent emotional states on shopping behavior. Several studies have manipulated atmospheric factors such as crowding (e.g., Eroglu and Harrell 1986; Eroglu & Machleit 1990; Harrell, Hutt, and Anderson 1980; Hui and Bateson 1991), colors (e.g., Bellizzi, Crowley and Hasty 1983), music (e.g., Kellaris and Altsech 1992; Milliman 1982, 1986; Yalch and Spangenberg 1988; 1993), and olfactory cues (Spangenberg, Crowley, and Henderson 1996) and tested their effects on shopping behaviors like satisfaction with the shopping experience (e.g., Eroglu & Machleit 1990; Bellizzi et al. 1983), purchase quantity (Milliman 1982; 1986), shopping times (Kellaris & Altsech 1992, Milliman 1982; 1986, Yalch and Spangenberg 1988), and intention to visit the store again (Spangenberg et al. 1996). However, with few exceptions (i.e., Hui and Bateson 1991; Yalch and Spangenberg 1988), these studies have not examined the emotional states of pleasure, arousal, and dominance postulated by Donovan and Rossiter (1982) as factors mediating the effect of retail environments on behavior.

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* http://us.badm.washington.edu/yalch/Research/atmosphe.htm

The current article reports a study of retail shopping that includes all three aspects considered important in studies of environmental psychology: environmental stimuli, emotional reactions, and shopping behavior. Shoppers listened to store music varying in its familiarity while they examined various articles of outdoor clothing. Our objective was to learn whether store music influenced shoppers' emotional states and, if so, whether these emotional states subsequently affected shopping behavior. Specific influences measured included time spent shopping, perception of the amount of shopping time, and actual product evaluations .

Environmental Psychology In Retailing

Mehrabian and Russell (1974) developed a framework for analyzing the effects of environments on individuals, emphasizing the role of nonverbal responses to environmental factors as a major determinant of behavior. Related to Bitner's (1992) exploration of how physical environments might affect both employees and customers and Donovan and Rossiter's (1982) PAD framework, our Figure illustrates how store environments might influence shopping behavior through mediating emotional states. The store environment contains various stimuli that might be perceived by the customer's senses; each stimulus offers many options with regard to variability. For example, store music varies by volume, tempo, pitch and texture and by the specific songs played (see Bruner 1990 for a lengthy discussion of music as a marketing stimulus). In addition, factors can be combined to create unique atmospheres. To project an upscale image, a manager might choose classical music, subdued colors, elegant perfumes, cool temperatures, sparsely displayed merchandise, and low lighting.

Mehrabian and Russell's (1974) framework specifies that individuals react to their environment along at least three dimensions: Pleasure, Arousal, and Dominance (PAD). The first is an affectual reaction, labeled Pleasure-Displeasure. This entails whether individuals perceive the environment as enjoyable or not enjoyable. For example, playing popular songs should enhance shoppers' enjoyment, whereas unpopular music might diminish it. The second dimension relates to Arousal. It assesses how much the environment stimulates the individual. Milliman (1982) found that playing slow music resulted in slower customer movement through a supermarket relative to no music or fast music; this result is perhaps attributed to a decrease in arousal. Relatedly, Kellaris and Kent (1993) found main effects for music tempo on subject arousal in a laboratory study. The third dimension is Dominance which concerns whether individuals feel dominant (in control) or submissive (under control) in the environment. An early study by Babbitt (1878) reported that violent patients became more violent when placed in a red colored room but less violent when in a blue room. This is consistent with the finding that individuals associate the color red with active, assertive, and rebellious moods (Aaronson 1970), whereas they associate blue with sedate tranquillity and a suppression of feelings (Schaie and Heiss 1964).

The PAD model has been tested in both retailing and nonretailing environments. Sherman and Smith (1987) combined Pleasure and Arousal in a retailing study as a unidimensional mood scale but this practice is inconsistent with the multi-dimensional theory underlying the measures (Russell 1980). Donovan and Rossiter (1982) treated the three dimensions as distinct factors and reported that shopping behaviors were related to measures of Pleasure and Arousal but not Dominance. In nonretailing environments, research generally supports the PAD model with the exception that Dominance is sometimes not a major factor or simply not measured (Russell 1980). It remains unclear whether difficulties in identifying behaviors associated with Dominance reflect its small influence on behavior or the need for improved measurement.

The last element of the framework presented in the Figure is a taxonomy of possible behavioral reactions to the environment (cf. Donovan & Rossiter 1982). Although a variety of shopping behaviors can be affected in many ways by environmental factors, Mehrabian and Russell (1974) suggested use of an approach-avoidance paradigm. Thus, environments could

be constructed to encourage or discourage approach behaviors. For example, bright colors might encourage individuals to enter a fast food restaurant, whereas uncomfortable seating might discourage long stays. These approach-avoidance behaviors can be grouped into four categories based on the type of behavior: time, exploration, communication, and satisfaction. Table 1 summarizes these four types of behaviors applied to retail shopping. The current research focuses on how much time consumers choose to spend shopping as a function of the type of music played in the store.

Music And Time Perceptions

Time is an important factor in retail shopping, partially because studies show a simple correlation between time spent shopping andshopping and amount purchaseds (cf. Milliman 1982). Also, time is argued to be as much a constraint on consumption as money and that predictions that individuals would have more time at their discretion in the future than in the past have not proven to be true (Berry 1979). For example, dual career families with children coping with the transportation difficulties in dense metropolitan areas may feel intense time pressure when shopping. Consequently, it is reasonable to expect individuals to budget their time, including shopping times, and to be concerned when they believe they are spending too much time in a store. People simply don't enjoy waiting too long or wasting time. Hornik (1984), for example, reported that shoppers overestimated their waiting time less when they reported a high level of shopping enjoyment relative to other activities. Thus, retailers would be prudent to to minimize perceived as well as actual time spent shopping for their patrons.

Field research by Yalch and Spangenberg (1988) suggested that music affects shopping times. In their study, clothing store shoppers were exposed either to a youth-oriented foreground music or adult-oriented background music. Interviews with shoppers as they were exiting the store revealed that younger shoppers felt they had shopped longer when exposed to background music, whereas older shoppers felt they had shopped longer when exposed to foreground music. Unfortunately, actual shopping times were not observed so it could not be determined if individuals shopped longer, merely thought that they did, or a combination of both factors.

Milliman's (1982) results suggest that music affects actual shopping times. In his study, restaurant patrons were exposed to either fast or slow tempo music. Individuals tended to stay longer when listening to the slow music compared to the fast music. The additional time did not result in any greater expenditures on food but did lead to an increase in the amount spent on drinks. No surveys were administered so it is not known whether the restaurant patrons were aware that they were spending more time or not.

Kellaris and Altsech (1992) supported the belief that music affects time perceptions. Individuals listened to original music composed in a light popular style, lasting 180 seconds. Its loudness varied from being either loud or soft, corresponding to levels associated with foreground or background music. Afterward, male and female subjects estimated song length. The results indicated no differences in perceived duration for males but that females perceived the loud music as lasting much longer than the soft music. These results, however, are not directly applicable to retailing because individuals were listening to music and not shopping. Further, exposure time was controlled for all individuals so it is not known if the volume of music would have affected self-determined listening times.

Although not conducted in a retail setting, perhaps the most surprising recent finding regarding the effect of music on time perception was that of Kellaris and Cox (1992). In a laboratory study, they found that modality affected listeners estimates of time period duration in a manner contradictory to the conventional wisdom of "time flys when your having fun." Perceived duration of time was longest for subjects exposd to positively valenced music and shortest for negatively valenced music. Thus, contrary to popular belief, in this experimetn, time did not fly when the time interval was filled with an affectively positive musical selection.

In summary, research suggests a relationship between characteristics of environmental music and both the actual and perceived amount of time devoted to a task; however, no study has looked at both effects simultaneously. In addition, most research on store music has varied actual qualities of the music (e.g., tempo), and not consumer perceptions of it (e.g., familiarity or liking). Both approaches are useful because retailers may select music based on its listener responses and familiarity as well as its other qualities. Additionally, listener responses are frequently studied in advertising contexts (e.g., Gorn 1982; Kellaris, Cox and Cox 1992), offering the potential for a convergence in theory and results.

Research Issues

An experiment was conducted to learn how individuals engaged in a shopping activity might be affected by environmental music varying in its perceived familiarity to the shoppers. Fontaine and Schwalm (1979) reported that, relative to no music or unfamiliar music, playing familiar music increased subjects' arousal level, vigilance in detecting visual signals, and mitigated an expected decline in vigilance as the length of the session increased. Thus, it is expected that individuals listening to familiar music will be more aroused and spend more time shopping than individuals listening to unfamiliar music. This was tested in the current study by observing the length of time individuals shopped when given a choice as to how much time to spend shopping.

A second issue concerns the relationship between music and perceived time. Perceptions of greater duration appear to be associated with awareness of the environment and activities occurring in it (Zakay, Nitzan & Glicksohn 1983). Because listening to familiar music seems to cause individuals to be more vigilant compared to listening to unfamiliar music (Fontaine and Schwalm 1979), shoppers were expected to perceive more time passing. Thus, it was expected that for shoppers who had a fixed amount of time to shop, individuals would estimate that more time transpired when listening to familiar music compared to unfamiliar music.

A third issue concerns the effect of music on product evaluations. Because individuals were expected to feel more comfortable in an environment featuring familiar atmospheric elements than unfamiliar ones, their product evaluations were expected to be more favorable when familiar music was played compared to unfamiliar music.

The final research issues pertain to the mediating role of the emotional measures of pleasure, arousal, and dominance. Individuals were expected to evidence more arousal, more pleasure, and a greater sense of dominance when listening to familiar music than unfamiliar music. These emotional responses, in turn, were expected to account for most of the effects of music on perceived and actual shopping times and product evaluations.

Method

Overview

A 2x2 factorial experiment was conducted to determine how time spent shopping might be affected by the type of music being played in the environment. One factor varied was the music being played while respondents shopped. Half heard familiar "contemporary" music and the other half unfamiliar "easy listening" music. The other factor was control over the time spent shopping. Half the subjects were given a fixed amount of time to shop whereas the other half could shop as long as they wanted. Shopping time was controlled in order to separate perceptual effects from actual effects. This necessitated using a simulated shopping experience instead of naturally occurring shopping. Dependent measures included the amount of time actually spent shopping, the amount of time perceived to have been spent, and product evaluations. In addition, respondents completed a modified version of Donovan and Rossiter's (1982) measures of emotional responses to environmental stimuli.

Procedure

Seventy-one individuals were recruited from marketing classes to participate in a new product evaluation task. In groups of three to six, subjects entered a classroom set up to appear like a clothing store. Ten articles of outdoor outerwear and equipment were displayed on tables and one of the two types of music was provided by a concealed tape recorder. Each subject completed a questionnaire while examining three items they chose from those on display. Half of the subjects were given a fixed amount of time to complete the task. The other half had an unlimited amount of time. Debriefing occurred after all groups had participated.

Manipulations

Music Familiarity. Two tapes were provided by a national supplier of environmental music. One tape consisted of familiar music, mostly top 40's song designed to appeal to college-aged individuals. The other tape was unfamiliar (to our subjects) music, older songs played in an instrumental form. Although songs on the unfamiliar music tape were less well-known to subjects, it was still likely that they would find it enjoyable as this music was designed by the providing firm to appeal to a broad cross-section of the population. Thus, it was expected that subjects would express little or no difference in liking for the two types of music; only differences in familiarity should be found.

Time Control. The other manipulation in the experiment involved control over the amount of time available to complete the product evaluation task. Half of the subjects were given the opportunity to take as much time as they wanted. The other half were given exactly eleven minutes for the task; pretests determined that this was a reasonable amount of time to examine the merchandise. The purpose of this manipulation was to distinguish actual and perceptual time effects. If subjects spent more time when listening to familiar music, this would be evident in the variable time condition. Efforts to isolate a perceptual effect without controlling time would be hindered by the possibility that perceptual differences are related to duration. For example, individuals may misestimate time more as its duration increases. With this study's design, music's separate effect on perceptions could be observed in the fixed time condition.

Questionnaire

The questionnaire was included in a shopping booklet. The first page was a cover sheet providing a description of the task as an evaluation of several proposed new types of outdoor equipment and clothing from a local manufacturer. Next, subjects answered a series of background questions related to subjects' experience and interest in outdoor activities. This was largely used to disguise the study as concerning outdoor products. The next three pages were identical and provided evaluation questions for three of the items on display. Subjects were instructed to assume that they were shopping for outdoor equipment and to select items of interest. The subjects wrote the name of the item at the top, evaluated it on seven bipolar adjective scales consisting of items like Lowest performance/Highest performance and Not at all stylish/Very stylish. In addition, subjects indicated their likelihood of buying the item, what they thought was an appropriate price, and the maximum price they would pay. Finally, they were provided with several blank lines and encouraged to write down any other thoughts that they might have. This was intended to encourage additional scrutiny of the items and provide an opportunity for shoppers to expand or shorten the task.

Subjects informed the experimenter when they had completed their shopping experience. At this point, they estimated the amount of time they had spent doing their product evaluations by marking an "X" on a dashed line with 60 dashes and points marked at 0, 5, 10, 15 and 20 minutes. The next to last page of the questionnaire consisted of a series of bipolar adjectives assessing the emotional responses (PAD) of the subjects to the simulated retail environment. The last page had several scales to determine the subjects' reactions to the room (sense of being crowded or not, temperature, lighting) and the music (liked/disliked and usually

listened to/rarely listened to). These scales were used to test the construct validity of the music manipulation.

Results

Music Manipulation. The subjects' evaluations of the familar and unfamiliar music at the end of the questionnaire were used to test whether their perceptions corresponded to the experimenters' expectations. T-tests revealed no difference in liking of the music (familiar = 3.9, unfamiliar = 4.0, $t(69) < 1.0$), but a significant difference in familiarity (familiar = 3.9, unfamiliar = 1.9, $t(69) = 4.5$, $p < .001$). Thus, our expectation that liking would not differ between the two types of music was supported and the familiarity manipulation was successful.

Other Environmental Factors. Evaluations of the retail setting in terms of lighting and temperature revealed no differences between the music conditions (all t's < 1). Subjects perceived the room as somewhat more comfortable when listening to familiar music than unfamiliar music (means = 3.4 vs. 2.7, $t(69) = 1.6$, $p < .15$).

Effects of Music on Time. The effects of music on actual and perceived shopping times were assessed in several ways (see Table 2 for cell means). First, variation in actual time was examined by comparing subjects in the variable time conditions who were exposed to familiar and unfamiliar music. More time was spent when the unfamiliar music was being played, ($t(37) = 1.7$, $p < .1$). This is contrary to our expectation that familiar music would encourage longer shopping.

To test the effects on perceived time, a comparison was made between unfamiliar and familiar music groups when shopping time was restricted to eleven minutes. The results were as expected (Table 2). Subjects perceived themselves as spending longer when exposed to the more familiar music compared to the less familiar music ($t(28) = 2.02$, $p < .05$).

Finally, the effect of music on perceived shopping time was analyzed in the variable time condition (Table 2). There was no difference in the perceptions of how much time was spent shopping between the two music conditions ($t(37) < 1$).

Effects of Music on Nonverbal Responses. Responses to the seventeen bipolar adjective scales adaptive from Donovan and Russell's (1982) scales were factor analyzed, resulting in three clearly identifiable factors. The Pleasure dimension consisted of contented-depressed, happy-unhappy, satisfied-unsatisfied, annoyed-pleased, bored-interested, hopeful-despairing. Responses to these items were summed and considered a measure of positive and negative mood during the task (Chronbach's = .88). The second factor was labeled Arousal and was composed of the items relaxed-stimulated, calm-excited, aroused-unaroused, and frenzied-sluggish, (Chronbach's = .70). The third dimension was Dominance and included responses to three items, controlled-in control, dominant-submissive, and influenced-influential (Chronbach's = .52).

Differences in emotional responses due to the type of music and variations in the amount of time allowed for shopping are reported in Table 2. Analysis of variance indicated a significant interaction of time control and music familiarity on the Pleasure dimension ($F[1,65] = 5.4$, $p < .03$). Analyses were run separately for the fixed and variable time groups, revealing a significant effect of music only in the fixed time condition. Contrary to expectations, individuals reported greater pleasure when listening to unfamiliar music compared to familiar music ($t(28) = 2.2$, $p < .05$).

There was also a significant interaction effect between music familiarity and control of time ($F[1,65] = 4.2$, $p < .05$) for the Arousal measure. Separate analyses for the two time conditions revealed no effect of music in the fixed time condition. In the variable time condition,

individuals reported greater arousal when listening to the unfamiliar music compared to familiar music ($t(37) = 1.9$, $p < .1$).

For the Dominance measures, although there was a significant overall effect of music ($F(1,64) = 4.8$, $p < .05$), separate analysis by control of time revealed that the effect was significant only in the fixed time condition. Here, individuals reported greater sense of dominance when listening to the unfamiliar music compared to the familiar music ($t(29) = 3.0$, $p < .01$).

Mediating Role of Emotions on Shopping Times. The mediating effect of the nonverbal responses on actual and perceived shopping times was tested using analysis of covariance. The statistical procedure used the three emotional states as covariates and type of music as the treatment factor. For subjects in the variable time condition, the results were that actual time was related to Arousal ($F(1,33) = 6.6$, $p < .05$) and that once this effect had been considered the effect of music was no longer significant ($p > .3$). For subjects in the controlled time condition, perceived shopping time was not significantly related to any of the covariates.

Mediating Role of Emotions on Product Evaluations. Although subjects could evaluate three products, some subjects in the fixed time condition did not have enough time to complete their evaluation of the third product and some in the variable time condition chose not to evaluate a third product. Therefore, only responses to the seven bipolar adjective scales for the first two products were summed and averaged to develop a measure of overall product evaluations. The effects of type of music and control of time on these evaluations was tested using analysis of covariance with Pleasure, Arousal, and Dominance as the covariates for both the fixed and variable time conditions. Because there was a significant interaction between type of music and control of time ($F(1,53) = 4.6$, $p < .05$), separate analyses were conducted for the fixed and variable time conditions. For the fixed time condition, the results were that product evaluations were affected by Pleasure, ($F(1,53) = 5.5$, $p < .05$) and music ($F(1,18) = 5.7$, $p < .05$). Shoppers evaluated the two products more favorably when listening to familiar music compared to unfamiliar music. In the variable time condition, only Arousal ($F(1,32) = 5.2$, $p < .05$) was significantly related to product evaluations. Correlational analysis across all groups revealed that product evaluations were positively related to Pleasure ($r = .33$) but negatively related to Arousal ($r = -.25$). Music had no significant effect in the variable time condition.

Discussion

The results of this study support the belief that shopping time is affected by a retail environmental factor like store music. Individuals who had a choice as to the duration of their shopping experience shopped longer when listening to less familiar music compared to more familiar music. This difference appeared attributable to differences in emotional responses to the two types of music. Individuals reported being more aroused while listening to the unfamiliar music compared to the familiar music. Once the effect of arousal on shopping times was considered, other reactions to music familiarity (either measured or unmeasured) did not have an effect on actual shopping times.

These results are counter to the expectation that listening to familiar music would encourage longer shopping , yet the finding is somewhat consistent with Kellaris and Kent's (1992) finding that time does not necessarily fly when exposed to affectively positive musical stimuli. This may have been partially due to misperception differences about how long the task was taking. Shoppers who shopped for a fixed amount of time perceived that they spent more time shopping when listening to familiar music compared to unfamiliar music. In the variable time shopping condition, the greater misperceptions of time in the familiar music compensated for the greater actual shopping time of the unfamiliar music subjects resulting in both groups reporting that they thought they had shopped for an equivalent amount of

time. Thus, studies using only reported shopping times to evaluate environmental music may yield inaccurate conclusions.

This complex relationship between music and shopping times demonstrates the practical difficulty of using environmental influences to affect consumer behavior. An environmental factor may have a predictable and desirable effect on one aspect of shopping, but there is the possibility that it will affect other aspects in unpredictable or undesirable ways. The net result in many cases may be that the desired behavioral change does not occur. Retailers are therefore cautioned to evaluate their atmospheric design choices on all relevant dimensions.

Efforts to relate music to emotional states may also be affected by compensating factors. For example, all three emotional states (Pleasure, Arousal and Dominance) were affected by the interaction of music with control of the amount of time shopped. In the fixed time conditions, listening to unfamiliar music increased perceptions of Pleasure and Dominance but not Arousal. In the variable time condition, unfamiliar music enhanced Arousal but not Pleasure and Dominance. A possible explanation is that in the variable time condition, Pleasure and Dominance may have been enhanced by the unfamiliar music and individuals responded by continuing their shopping (actual shopping was longer in this condition). After the extended time period, emotional states may have reverted back to normal levels such that by the time emotional states were assessed they were equivalent to those in the familiar music condition. If so, this implies that retailers should not rely on post shopping (exit) questionnaires to evaluate emotional states. Instead, interviewing should be done while shoppers are still examining the merchandise.

Although studies have reported significant correlations between measures of retail environments, emotional states and shopping experiences (e.g., Dawson, Bloch and Ridgway 1990; Donovan and Rossiter 1982; Sherman and Smith 1987), the experimental research reported in this paper found the relationships between music, emotions and product evaluations to be complex. Overall, product evaluations were positively related to pleasure. This is consistent with the idea that consumers will be more favorably disposed toward products when they are in a good mood (Gardner 1985). Further, product evaluations were negatively related to arousal. This is consistent with the idea that aroused shoppers may be more vigilant and discriminating when examining products. However, neither emotional measure used in the present research accounted for the effects of familiar music on product evaluations. For shoppers in the fixed time condition, familiar music enhanced evaluations relative to unfamiliar music. This occurred even though pleasure was lower and arousal greater when individuals were exposed to familiar music in the fixed time condition. Clearly, more research is needed to determine if there are other factors besides the emotional states postulated by Mehrabian & Russell (1974) that might cause music to affect product evaluations. One possibility is through classical conditioning in such a way that individuals are not aware of emotional state changes (cf., Gorn 1982). Yet another issue may emphasize the difficulty of interpreting experimental effects of music on shoppers: Kellaris and Kent (1993) warned that, "When different pieces of music are used to manipulate a musical variable, musical properties will be confounded, making it difficult to isolate specific causal antecendents (p. 395)." Nearly all retail studies involving music have used different selections for different experimental conditions.

The study reported in this paper examined environmental music varying in it's level of familiarity to shoppers. As a complex stimulus, music has many properties that might affect shopping behavior. Future research should consider aspects such as liking of music (a common factor in advertising experiments on music; e.g., Gorn 1982), tempo (e.g., Milliman 1982), volume (Kellaris & Altsech 1992), and the interaction between music and characteristics of individual listeners (Kellaris and Kent 1993).

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Table I

Taxonomy of Retailing Shopping Behaviors

1. A desire to physically stay in or to get out of the environment. This relates to the decision to shop or not to shop at the store. It also might relate to the length of time spent in the store. Presumably, attractive in-store environments build store traffic and encourage individuals to linger in the stores. However, it might be difficult to accomplish both simultaneously. For example, bright yellow might attract customers but prolonged exposure might be overstimulating resulting in a quick departure. [TIME]

2. A desire or willingness to explore the environment. This relates to how much area of the store is covered. Stores are sometimes designed like caves with areas not easily seen from a single location to encourage shoppers to walk around. Having hidden sale displays might further reward and encourage shoppers to explore the entire store. Dark colors might suggest mystery and entice exploration.[EXPLORATION]

1. A desire or willingness to communicate with others in the environment. This would be particularly important in retail stores in which customers must rely on the sales staff to describe and explain the items in the store. Neutral colors might minimize status differences and thereby encourage greater social interaction. [COMMUNICATION]
2. The degree of enhancement or hindrance of performance and satisfaction with task performance. This relates to factors such as the ability of customers to locate what they want, to purchase the item with a minimal wait in line, and to transport easily the item from the store to their car. Express lines and carryout help facilitate this aspect of grocery shopping. [SATISFACTION]

Table 2
Cell Means for Time, Emotions and Product Evaluations

	Variable Shopping Time		Fixed Shopping Time	
	Unfamiliar Music	Familiar Music	Unfamiliar Music	Familiar Music
Actual Time (seconds)	801	738	660	660
Perceived Time (seconds)	483	527	436	607
Pleasure	28.5	29.6	30.6	24.6
Arousal	18.9	16.5	16.0	17.6
Dominance	13.2	12.7	14.8	11.7
Product Evaluations*	37.1	37.8	37.1	39.6

*** not adjusted for emotional states used as covariates.**

Priloga 3:

C. S. Areni & D. Kim (Texas Tech University):

THE INFLUENCE OF BACKGROUND MUSIC ON SHOPPING BEHAVIOR: CLASSICAL VERSUS TOP-FORTY MUSIC IN A WINE STORE*

As part of a field experiment in a large U.S. city, the background music (classical versus Top-Forty) in a centrally located wine store was varied over a two month period. The results of an ANOVA indicated that the classical music influenced shoppers to spend more money. Additional findings suggest that, rather than increasing the amount of wine purchased, customers selected more expensive merchandise when classical music was played in the background. MacInnis and Park's (1991) notion that music is more persuasive when it "fits" the persuasion context is employed to account for these results.

Introduction

Kotler (1973-1974) coined the term atmospherics to describe various visual (color, brightness, size, shape), aural (volume, pitch), olfactory (scent, freshness), and tactile (softness, smoothness, temperature) dimensions of a store that can influence the purchase probabilities of consumers. Although Kotler requested that further research be conducted regarding the impact of these in-store factors on behavior, the academic literature on this topic remains rather sparse. The research that has appeared tends to be limited to a rather narrow range of consumer reactions. Specifically, researchers have focused on overt quantitative indicators (i.e. dollar amount spent, time spent, etc.) or perceptions of various dimensions of store image (see Bellizzi, Crowley and Hasty, 1983), while largely ignoring other aspects of shopping behavior (Eroglu, Ellen, and Machleit, 1991).

Moreover, due to the difficulties of conducting atmospheric research in the field, much of the emergent research has relied on verbal (i.e. Gardner and Siomkos, 1986) or visual (i.e. Eroglu and Machleit, 1990) simulations of retail environments. While these laboratory simulation techniques offer the advantages of methodological expediency and experimental control, their ability to realistically capture the desired store atmosphere is suspect. The literature on atmospherics would, therefore, be enhanced by research examining the impact of atmospheric variables on a wider range of consumer behavior in an actual retail setting. Consistent with this objective, this study entailed the observation of: (1) the number of shelf items examined, handled, and purchased, (2) the shelf location of the items examined, handled, and purchased, (3) the total dollar amount of the merchandise purchased, (4) the total amount of time spent shopping, and (5) the frequency with which patrons consumed merchandise on site, under two background music conditions (Top-Forty versus classical) in a downtown wine store.

The Literature On The Effects Of Music

[See Bruner (1990) for a more detailed discussion of the various effects of music on moods, preferences, and general behavior.] The number of investigations addressing the influence of music on consumer behavior is still rather small. Although researchers have examined the effects of music volume (Smith and Curnow, 1966) and tempo (Milliman, 1982, 1986) on certain aspects of shopping behavior, Bruner (1990) suggests that the genre of the background music is likely to produce stronger effects on perceptions and preferences. Further, since preferences for musical genres are strongly influenced by individual differences (see Cupchik, Rickert, and Mendelson, 1982), varying the genre of a store's background music is more likely to produce differential effects across customer groups.

Yalch and Spangenberg (1990) examined this possibility by comparing the effects of easy-listening versus Top-Forty music on shoppers' estimates of the amount of time they spent shopping. They found that younger customers (under 25) reported spending more time

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shopping when exposed to easy-listening music, whereas older customers (25 and over) thought they were in the store longer when exposed to Top-Forty music. Yalch and Spangenberg speculated that shoppers who encounter non-typical environmental factors (i.e., younger shoppers exposed to easy listening music) perceive intervals of time being longer than they actually are.

The Yalch and Spangenberg study raises the possibility that the given musical genres can produce highly specific perceptions by consumers. In the context of the present study, the objective was to identify the background music that would create a setting appropriate for the purchase and consumption of wine. MacInnis and Park (1991) have formalized this notion by defining the "fit" of music as "consumers' subjective perceptions of the music's relevance or appropriateness" to the persuasion context (p. 162). Although MacInnis and Park were concerned with the persuasive impact of music in an advertising setting, their notion of "fit" seems applicable to the impact of atmospheric variables as well. The task then was to identify the music that best fits the context of examining, purchasing, and tasting wine.

Wine Tasting, Classical Music And Sophistication

Arlott (1984) presents the work of several authors that imply that wine tasting is associated with a certain degree of foreignness, sophistication, and even snob appeal. In discussing the undertaking of his book on wine, Kramer (1989), for example, notes that: At the time I knew nothing of wine and had no intention of crossing its path. Wine seemed forbidding, snobbish, and, above all, daunting in its complication. I was suspicious of its trappings and cowed by its air of sophistication (p. 8).

Empirical evidence supports this intuition. Lesch, Luk, and Leonard (1991) found that among women who consumed alcoholic beverages, wine drinkers in comparison to beer and spirits consumers, were generally younger, better educated, and earned higher incomes. Wine drinkers also had a higher appreciation for art and lower regard for traditional female roles.

This suggests that wine purchasing, tasting and consumption are associated with higher socio-economic status, prestige, sophistication, and complexity. What kind of music would "fit" such a context? Farnworth (1969) offers the following insight: But the diametrically opposed view, and quite possibly the more common one is [that]...the musically eliteCthe critics, the genius composers, and the musicologistsChave discovered or on their way to discovering what constitutes 'good taste.' One's jazz loving friends have a taste of low order; a higher order of taste is possessed by the man who loves the music of Mendelssohn but not that of Beethoven or Bach; and a still higher status has been reached by those who are more attracted to the works of Beethoven and Bach than to those of Mendelssohn (p. 98, insert ours).

Likewise, DiMaggio (1986) has developed a model describing the patronage behavior of performing arts audiences. He recommends that firms emphasizing highly artistic/cultural (as opposed to highly extravagant/popular) performances should charge a higher admittance price to the select, well-to-do audiences having more refined tastes. Stone (1983) provides a more detailed discussion of the association of classical music with maturity, formality, and higher socio-economic status. Overall, the implication is that, if wine tasting and consumption are sophisticated, prestigious, complicated, and even snobbish behaviors, then the classical genre of music appears to be well suited for complimenting these activities.

Propositions

Although this study was conducted on a largely exploratory basis, the general proposition suggested by the aforementioned works is that playing classical music in the background will increase the amount of merchandise: (1) examined, (2) handled, and (3) purchased, and (4) the amount of time patrons spend in the store relative to playing other genres of music in the background.

Method

The study was conducted in a downtown restaurant in a large southeastern city. The restaurant featured a wine cellar, clearly visible through a glass section of the floor, that was open to patrons who wished to just visit, sample some wines, or purchase some bottles of

wine. This unique setting afforded the opportunity to examine the impact of background music on shopping, purchase, and consumption behavior.

Data Collection

All observations were recorded between 6 p.m. and 11 p.m. on successive Fridays and Saturdays beginning May 4, 1990 and ending July 28, 1990. Each of the two experimental conditions (i.e., classical versus Top-Forty music) was counterbalanced with respect to the day of the week via random assignment of the latter to the former. Further, no data were collected on dates where the researchers were able to identify exogenous factors (i.e., holidays, special events, etc.) likely to influence demand.

The data were collected via direct observation. Each consumer was observed as s/he entered the wine cellar. The observer, who was naive to the research hypotheses, stood behind a counter labeled 'Employees Only' and posed as an inventory keeper. From that position he was easily able to observe each consumer as s/he perused the merchandise in the cellar. Since the wine cellar averaged eleven customers per evening, there was rarely more than one customer in the store at any time, making observation of search and purchase behavior a relatively easy task.

Independent Variables

Manipulated Variables: Prior to the study, musical selections from several genres of music, including classical and Top-Forty, were randomly played on a given evening according to the whims and preferences of the manager. Classical versus Top-Forty background music was manipulated by repeatedly playing only selections from one of the two genres on a given night. The music played in the classical condition consisted of: The Mozart Collection, Mendelssohn Piano Concerto #2, My Favorite Chopin, Vivaldi - The Four Seasons. These recordings were selected because they were similar to the classical selections played in the wine cellar before the study began. In the Top-Forty music condition, the following sections were played: The Traveling Wilburys: Volume 1, Fleetwood Mac: Behind the Mask, Robert Plant: Manic Nirvana, Rush: Presto. In order to qualify as being "Top-Forty," the recordings had to be one of Billboard Magazine's top forty albums (tapes) and have a single (song) in Billboard's top twenty singles list in the six months prior to the study. The volume of the music was held constant across the two conditions.

Measured Variables: Customer type was measured by classifying patrons as being either single male, single female, a male/female couple, or a group of people not consisting of male/female couples. Patrons were also classified into the following customer age categories: 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 and up. If a couple or group of consumers were judged to consist of members belonging to more than one age category, this variable was coded as missing data.

Dependent Variables

Information Search: Similar to Hoyer (1984), information search was measured by observing subjects' inspection of the merchandise on the shelves. Four variables were recorded. The observer counted the number of items examined. This was defined as the sum of all items (i.e. wines) for which the customer: (1) stopped to read the shelf label for more than three seconds, (2) pointed to the bottle on the shelve, and/or (3) touched the bottle on the shelve. The observer also counted the number of items handled. In order to qualify as being handled, an item must have been pulled from the shelf by a customer. Since the wine bottles were stored at three distinct shelf levels, with the middle level corresponding to the "eye level" of an adult of average height, the observer was able to record the shelf location of items examined and the shelf location of items handled.

Purchase Behavior: Both observational and objective measures of purchase behavior were employed in the present study. The observer recorded the number of items purchased, the shelf location of the items purchased, and, since he had access to the register, the total dollar amount of each customer's purchase.

Consumption Behavior: Since the wine store contained a dining area for wine tasting and/or general consumption, the observer noted whether any wine was consumed in the wine cellar.

Additional Measures: Due to some of the relationships and effects implied in the literature review, the observer recorded the amount of time each customer spent in the cellar by noting the exact time at which the customer(s) entered and exited the wine cellar.

Data Analysis

Because this study was conducted in the field rather than the laboratory, individual subjects were not randomly assigned to each music condition. Rather, the researchers employed a counterbalanced experimental design wherein the successive Fridays and Saturdays of the sixteen week period of the study were randomly assigned to experimental conditions. Thus, background music (classical versus Top-Forty) and day of the week (Friday versus Saturday) were completely crossed experimental factors with individual shoppers nested within day of the week. Consistent with the recommendations of Keppel (1982), individual night rather than individual shopper is the appropriate unit of analysis for an ANOVA.

However, since subjects were "assigned" to experimental units conditions on the basis of having happened to enter the wine store on a particular Friday or Saturday for whatever reason, the observed variation between nights in each condition could be due to differences that existed between the groups quite independent of the music manipulation (i.e. selection bias).

In order to check for preexisting differences between groups, chi-square analyses were performed on cross-tabulations of background music condition with each of the two primary sample descriptors, customer age and customer type. Although neither of the two analyses reached traditional levels of significance, both approached significance (chi-square < .11 for type and chi-square < .12 for age). Thus, the influence of music on each dependent variable is reported after the variance shared with customer age and type has been removed from the latter.

A second major threat to internal validity of the study concerns exogenous events (i.e. a professional basketball game at a nearby arena) that might have influenced store traffic on a given night. In order to remove variance in each dependent variable due to differences in levels of store traffic, average behaviors rather than total behaviors constituted the observations for a given night. Thus, there were sixteen observations for all dependent variables, each representing an average for the store on a given night, included in the ANOVAs reported below.

Results

Table 1 presents the means and standard deviations for each dependent variable by music condition. There was little or no impact of background music on the number of shelf items examined ($F = 0.02$, $p < .90$), the number of items handled ($F = 0.93$, $p < .35$), the number of items purchased ($F = 0.65$, $p < .43$), the frequency with which patrons sampled wine on site, (Chi-square = 0.49, $p < .49$), or the amount of time spent in the store ($F = 0.34$, $p < .57$). [Interestingly, shoppers examined, handled and purchased significantly more items from shelf level two, lending credence to the emphasis that salespersons place on obtaining "eye level" shelf space.] Background music did, however, influence the amount of money shoppers spent ($F = 6.01$, $p < .02$) with classical music producing a higher level of sales than Top-Forty music. When the variance shared with customer age and customer type was removed from sales, the influence of music remained significant ($F = 4.74$, $p < .032$). [Given the exploratory nature of the five implied hypotheses, a family-wise correction was applied to all analyses (see Keppel, 1982, pp. 145-46). The reported effect of background music on sales is significant at a family-wise error rate of 0.15.]

The findings regarding the impact of background music on total sales and the number of items purchased suggests that rather than influencing patrons to purchase greater quantities of merchandise, the classical music led them to buy more expensive items. The implications of this result are discussed below.

Discussion

The result that shoppers purchased more expensive merchandise when classical music was played in the background is consistent, if not overwhelmingly supportive, of MacInnis and

Park's (1991) contention that music must fit the persuasion context in order to produce the desired outcome. If consumers associate wine consumption with prestige and sophistication, then Top-Forty music may provide an incompatible cue, communicating, as Konecni (1982) suggests, a more common, less refined environment. This explanation suggests that retailers should devote considerable attention to the symbolic meaning underlying each purchase experience. If consumers are seeking sophistication, then in-store cues must suggest, and even facilitate that experience. The same holds for other sought shopping experiences like excitement, relaxation, etc.

It is also possible, however, that consumers had very little experience purchasing wines, and thus had only vague expectations and intentions upon entering the cellar. Many customers, in fact, commented that they had never visited a wine cellar. If this was the case, then the background music may have operated independently of the expected purchase experience. At least two explanations for the results are suggested under this scenario.

One possibility, suggested by the work of Markin, Lillis, and Narayana (1976), and an anonymous reviewer, is that, given the unfamiliar setting of the wine cellar, consumers, consciously or unconsciously, sought external cues as to appropriate behavior. The classical music may have communicated a sophisticated, upper class, atmosphere, suggesting that only expensive merchandise should be considered. Customers may even have felt pressure to conform to the setting implied by the music by purchasing expensive wine.

A second possibility is that the background music communicated to shoppers the price and quality of the merchandise in the store. Yalch and Spangenberg (1990) suggest that any retailer wishing to convey a high prestige, high price image should consider classical background music. The results of the present study support this contention. It is possible that shoppers, being somewhat unfamiliar with wine cellars and wines in general, used the classical music as a cue and inferred that the cellar contained mostly high priced merchandise. As noted by a second anonymous reviewer, a "no music" control condition would have been helpful for discriminating the former explanation, which implies that Top-Forty music inhibited sales, from the latter two, which suggest that classical music enhanced sales.

It is interesting that the number of items examined, handled, and purchased, the total amount of time spent in the store, and the decision to taste wines on site were unaffected by the background music. A potential explanation for these null results, suggested by an anonymous reviewer, is that various aspects of musical selections affect perceptions and behaviors differently. Most of the null results were obtained for actual behaviors. Perhaps musical tempo, rather than genre, produces a stronger influence on these variables (see Milliman, 1982, 1986). However, musical genre may be more integral to affecting (conscious) perceptions regarding appropriate behaviors, merchandise quality, etc (see Bruner, 1990).

Limitations

As with any field experiment, this study is limited by two distinct but related shortcomings affecting internal validity. The first concerns a selection bias. Since subjects were "assigned" to experimental conditions on the basis of having happened to enter the wine store on a particular day for any given reason, it is possible that mean differences in information search behavior, purchase intentions, etc. existed among the experimental groups quite independent of the actual treatments. We attempted to assess selection bias by examining the distributions of customer age and customer type within each lighting condition. However, numerous other differences may have existed between the two groups, thus biasing our interpretation of the observed variation in total sales by music condition. The second threat to internal validity concerns the inability to control for exogenous factors that might have influenced the amount of store traffic on a given night. Since the dependent variables of the study were average rather than total behaviors, external influences on store traffic need not have influenced the results directly. However, the literature suggests that an individual shopper's behavior depends on the number of other customers present in the store. Further, this research implies that the presence of other shoppers may produce either beneficial (Kotler, 1973-74) or detrimental (Harrell, Hutt, and Anderson, 1980; Eroglu and Harrell, 1986; Eroglu and Machleit, 1990) effects for the retailer. Although the wine cellar rarely contained

more than two customers, the interpretation of the results should be tempered somewhat due to the failure to control for these social environmental variables.

A second shortcoming of this research concerns the inability to assess the reliability of the observational measures due to reliance on a single judge. Although single observers have been employed in previous research on atmospherics (see Milliman, 1982), the behaviors to be recorded were simple in nature (i.e. time spent in a specified area) ensuring a reasonable degree of reliability (see Carlsmith, Ellsworth, and Aronson, 1976). The observational measures of information processing activity in the present study were somewhat more complex. Hoyer (1984), however, relied on a single observer to measure the information search and choice processes of supermarket shoppers. Like Hoyer, the authors of the present research attempted to minimize measurement error by developing:

(1) highly specific descriptions of the behaviors to be observed, and (2) a coding scheme that was easy to implement. It was hoped that these precautions, combined with the low number of customers on a per hour basis, would produce an acceptable level of accuracy.

A third limitation of this research concerns the manipulation of classical versus Top-Forty music. First, as discussed above, since the experimental design did not include a "no music" control condition, it is difficult to determine whether classical music facilitated the selection of expensive wine, or whether Top-Forty music inhibited such selections. In addition, although the popular selections were randomly chosen from a population of cassettes determined to be the most popular by various music publications, no such procedure was employed in determining the classical selections. It is, therefore, difficult to say whether the latter music condition adequately represented the classical music genre. Moreover, the manipulation may have been confounded with several other dimensions of music (i.e. tempo, pitch, familiarity) known to influence perceptions and behavior (see Bruner, 1990).

Finally, this research failed to directly assess the "fit" of the music to the persuasion context (see MacInnis and Park, 1991), but rather inferred fit on the basis of second-hand sources. Although the present study was largely exploratory in nature, a more direct indicant of fit would have been desirable. Similarly, the work of Mehrabian (1976) and Donovan and Rossiter (1982) has focused on the dimensions of subjective experience that mediate the impact of atmospheric variables on behavior (see also Owens, 1992). However, the reluctance of store management to employ intrusive measures prevented the assessment of subjective reactions, thus leaving their status as mediators untested. Of course, the pretesting of various musical selections would have allowed for the manipulation of music conditions along subjective dimensions (see, for example, Stratton and Zalanowski, 1984). However, the implicit assumption underlying such a pretesting procedure, that individuals have relatively homogeneous reactions to the musical selections regarding the dimensions of interest, is somewhat suspect (see Cupchik et al, 1982).

Conclusion

This research found that patrons spent more money in a wine store when classical rather than Top-Forty music was played in the background, though the number of shelf items examined, handled, and purchased, and the amount of time spent did not vary by music condition. The findings regarding the impact of background music on total sales and the number of items purchased suggest that, rather than influencing patrons to purchase greater quantities of wine, the classical music induced them to purchase more expensive wines. Though it did not directly test formal hypotheses, this result offers support for MacInnis and Parks' (1991) notion that music must be appropriate for the context in which it is employed in order to enhance persuasion, and for Yalch and Spangenberg's (1990) suggestion that classical music evokes perceptions of higher priced store merchandise.

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ENVIRONMENTAL FACTORS THAT INCREASE THE FOOD INTAKE AND CONSUMPTION VOLUME OF UNKNOWING CONSUMERS*

KeyWords consumption volume, energy intake, energy, obesity, environmental influences, situational cues, weight control

Abstract Package size, plate shape, lighting, socializing, and variety are only a few of the environmental factors that can influence the consumption volume of food far more than most people realize. Although such environmental factors appear unrelated, they generally influence consumption volume by inhibiting consumption monitoring and by suggesting alternative consumption norms. For researchers, this review suggests that redirecting the focus of investigations to the psychological mechanisms behind consumption will raise the profile and impact of research. For health professionals, this review underscores how small structural changes in personal environments can reduce the unknowing overconsumption of food.

Introduction

Food choice decisions are different from food consumption volume decisions. The former determine *what* we eat (soup or salad); the latter determine *how much* we eat (half of the bowl or all of it). An impressive amount of time, intelligence, and resources have been invested in understanding the physiological mechanisms that influence food choice (111). A much smaller investment has been made in understanding howand why our environment influences food consumption volume (42).Yet environmental factors (such as package size, plate shape, lighting, variety, or the presence of others) can increase food consumption volume far more than people may realize.

This is one of the ironies of food consumption research. Whereas people will acknowledge that environmental factors influence others, they often wrongly believe they are unaffected (138). This suggests there are influences at a basic level of which people are not aware or do not monitor. Understanding these drivers of consumption volume has immediate implications for research, nutrition education, and consumer welfare (64, 111). This review examines the environmental factors that influence consumption intake and why they do so.

Although research on eating should be interdisciplinary, much of it is not. Some of these gaps between fields are caused by language differences that separate the literatures. For instance, while the words "energy" or "calorie intake" are commonly used in the health sciences, words implying more personal volition, such as "consumption volume" or "usage," are often used in the social sciences. In this review, special effort will be made to introduce recent findings in psychology, economics, consumer research, marketing, and family and consumer science in addition to underscoring the contributions in nutrition, dietetics, and epidemiology.

The environment can be organized into the eating environment (124) and the food environment (see Figure 1). The eating environment refers to the ambient factors associated with the eating of food, but that are independent of food, such as atmospherics, the effort of obtaining food, the social interactions that occur, and the distractions that may be taking place. In contrast, the food environment refers to factors that directly relate to the way food is provided or presented, such as its salience, structure, package or portion size, whether it is stockpiled, and how it is served.

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ENVIRONMENT AND FOOD CONSUMPTION

Both environments contribute directly to consumption volume; they can also contribute indirectly by suggesting consumption norms and inhibiting consumption monitoring. For instance, dining with a friend can have a direct impact on consumption because of the longer duration of the meal. It can also have an indirect impact because of the consumption norms set by the friend—who cleans his plate and orders a dessert—and because the enjoyment of his or her company distracts one away from accurately monitoring consumption.

Although the environmental factors outlined in Figure 1 are discussed individually below, it is important to realize that they operate simultaneously. Consider the end-of-the-year weight gain that many experience over the holidays (105, 150). For most, this weight gain is a combined result of the eating environment and the food environment. The holiday eating environment directly encourages overconsumption because it involves parties (long eating durations), convenient leftovers (low eating effort), friends and relatives (eating with others), and a multitude of distractions. At the same time the food environment—the salience, structure, size, shape, and stockpiles of food—also facilitates overconsumption.

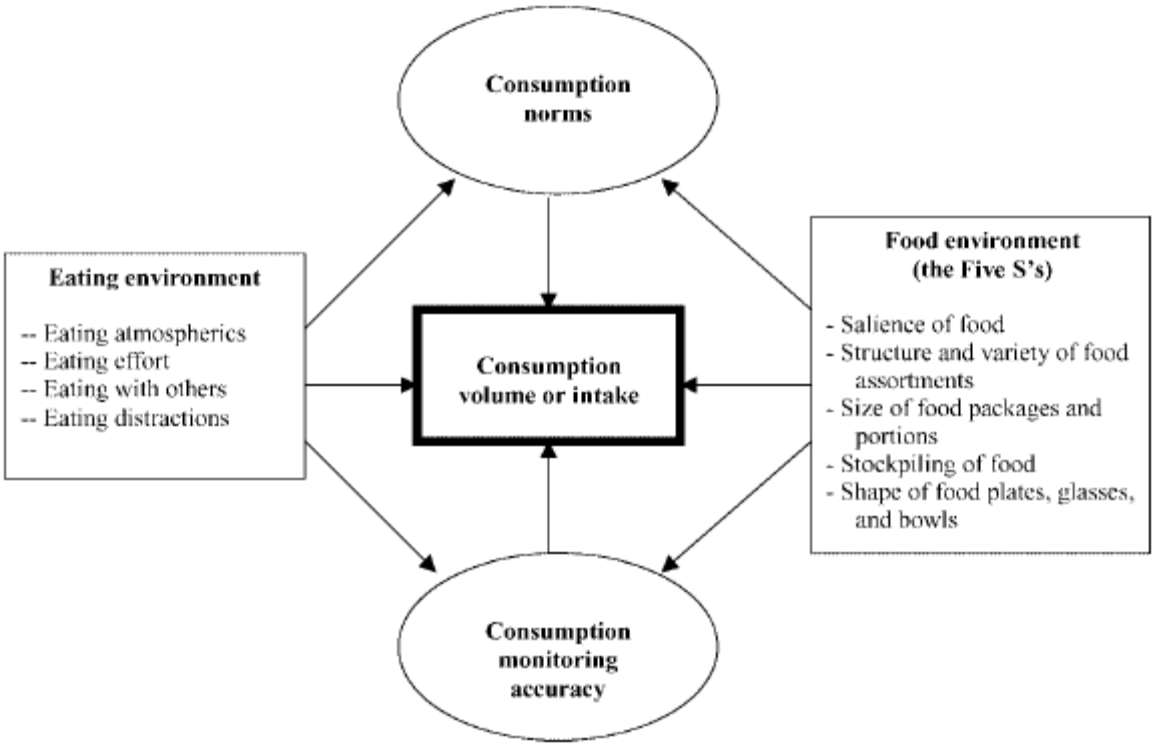

Figure 1 Antecedents and mediators of food consumption volume.

After underscoring the ubiquitous impact of consumption norms and consumption monitoring on behavior, this review describes the systematic influences of the eating environment and the food environment. For researchers, this review suggests that redirecting our focus to the processes behind consumption will raise the profile and impact of research. For health professionals, this review underscores how small structural changes in personal environments can help reduce the unknowing overconsumption of food.

WHAT MEDIATES CONSUMPTION?

Research has effectively identified many of the environmental factors that influence consumption. It has less effectively, however, explained why they do so. Two promising starting points involve consumption norms and consumption monitoring. An important theme of this review is that consumption norms and consumption monitoring partially mediate or

explain why many seemingly unrelated environmental factors consistently influence eating behavior in predictable ways.

Consumption Norms Offer Suggestible Benchmarks

People can be very impressionable when it comes to how much they will eat. There is a flexible range as to how much food an individual can eat (40), and one can often "make room for more" (7, 26, 31).

A key element of Figure 1 is that of consumption norms. For many individuals, determining how much to eat or drink is a relatively low-involvement behavior that is a nuisance to monitor continually and accurately, so they instead rely on consumption norms to help them determine how much they should consume.

Food-related estimation and consumption behavior can also be based on how much one normally buys or consumes (18). Consumption can be further influenced by other norms or cues that are present in the environment. Many seemingly isolated influences of consumption—such as package size, variety, plate size, or the presence of others—may involve or suggest a consumption norm that influences how much individuals will eat or drink.

Such norms suggest a quantity (or a range) that it is acceptable to consume. That is, the number of items in an assortment or the eating behavior of a dinner companion may serve as a normative benchmark that an individual uses to gauge how much should be consumed. Similarly, large plates or packages may implicitly or at least perceptually suggest it is appropriate to eat more food than would be suggested by smaller plates or smaller packages. The use of consumption norms, as with normative benchmarks in other situations, may be relatively automatic and may often occur outside of conscious awareness (117, 118).

ConsumptionMonitoringModerates ConsumptionDiscrepancies

A second key element of Figure 1 is that of consumption monitoring, which helps individuals reduce discrepancies between perceived and actual consumption levels. The influence of environmental factors on consumption is magnified because they can bias or confuse one's estimate of how much he or she has eaten. Even when individuals were shown that larger package sizes caused people to underestimate their consumption by at least 20%, many participants in lab and field studies wrongly maintained that they were unaffected (134). The same is true with other studies examining low involvement behaviors. Whereas these individuals readily acknowledge the influence of environmental factors on others, they deny that the factors influence them as well (138).

Not surprisingly, a major determinant of how much one eats in a distracting environment is often whether the person deliberately paid attention to (or attempted to monitor) how much he or she ate (1, 87). In lieu of monitoring how much one is eating, people can use cues or rules-of-thumb (such as eating until a bowl is empty) to gauge how much they will eat. Unfortunately, using such cues and rules-of-thumb can yield biased estimates and surprises. In one study, unknowing diners were served tomato soup in bowls that were refilled through concealed tubing that ran through the table and into the bottom of the bowls. People eating from these "bottomless" bowls consumed 76% more soup than those eating from normal bowls, but estimated that they ate only 4.8 calories more (143).

Paradoxically, people who tend to be most focused on food consumption and weight control may be particularly susceptible to the environmental factors that spark overeating and that undermine their attempts at restraint (38, 66). Eating is multidimensional and difficult to monitor. This can cause people to focus more on food choice than on consumption volume, and it can lead to unmonitored, unintended results. For instance, people dining at an Italian restaurant correctly believed that if they ate butter with their bread they would consume fewer fat calories per slice of bread than if they dipped their bread in olive oil. What they did not realize, however, is that they compensated for this reduction in fat calories by eating 23% more bread during the course of the meal (140).

HOW THE EATING ENVIRONMENT STIMULATES CONSUMPTION

What causes the initiation and the cessation of eating? One study asked dieters to maintain a consumption diary and to indicate what caused them to start and to stop eating (130). Aside from hunger, participants claimed they started eating because of the salience of food ("I

saw the food"), the social aspects of eating ("I wanted to be with other people"), or simply because eating provided them with something to do ("I wanted something to do while watching TV or reading"). When asked why they stopped eating, some participants pointed to environmental cues (such as the time or the completion of the meal by others) that served as external signals that the meal should be over (116). Others stopped eating when they ran out of food, and still others stopped because their television program was finished or because they were at a stopping point in their reading.

These findings are consistent with others that suggest people may have continued to eat if they had been given more food, more time to eat, or more time to watch television (109). These responses illustrate four important consumption drivers in the eating environment: (*a*) eating atmospherics, (*b*) eating effort, (*c*) eating with others, and (*d*) eating distractions. Each driver is investigated in turn below.

Atmospherics Influence Eating Duration

Atmospherics refer to ambient characteristics—such as temperature, lighting, odor, and noise—that influence the immediate eating environment. Consider the direct physiological influence that ambient temperature has on consumption. People consume more during prolonged cold temperatures than during hot temperatures (13) because of the body's need to regulate its core temperature. In prolonged cold temperatures, more energy is needed to warm and maintain the body's core temperature (148); therefore, more food is eaten. In prolonged hot temperatures, the body's core temperature must be cooled and maintained (72); therefore, more liquids must be consumed.

Other atmospherics—such as lighting, odor, and noise—are similar to each other in that they have a more indirect or mediated impact on consumption. These atmospherics are thought to increase consumption volume partly because they simply make it comfortable or enjoyable for a person to spend more time eating (see Figure 2). Each is discussed individually.

LIGHTING Dimmed or soft lighting appears to influence consumption in two different ways: by increasing eating duration, and by increasing comfort and disinhibition. It has been widely reported that harsh or bright illumination decreases how long people stay in a restaurant (120), whereas soft or warm lighting (including candlelight) generally causes people to linger and enjoy an unplanned dessert or an extra drink (63, 91). Because people are less inhibited and less self-conscious when the lights are low, they are likely to consume more than they otherwise would (57). The effect of lighting may be particularly strong when dining with others.

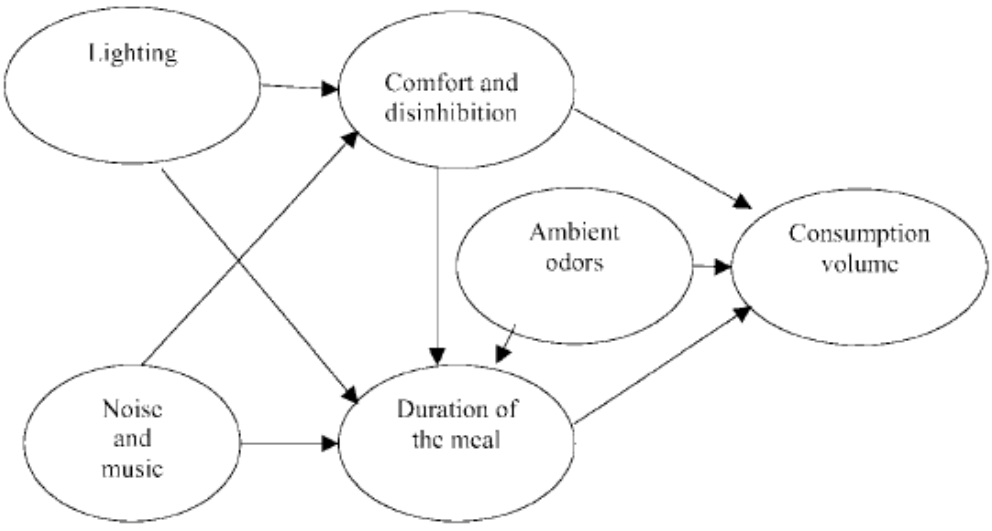

Figure 2 Atmospherics that influence food consumption volume.

ODOR Odor can influence food consumption through taste enhancement or through suppression (108, 122). Unpleasant ambient odors are likely to shorten the duration of a meal and to suppress food consumption. Yet the reverse is not necessarily true; it is not known whether favorable odors necessarily increase consumption volume. It has been found, for instance, that regardless of whether a person tastes a food or simply smells it, sensory-specific satiety can occur within a reasonably short time (104). This suggests that although odors can have a depressing impact on consumption, they might not necessarily increase consumption other than by simply initiating it.

NOISE AND THE SOUND OF MUSIC Soft music generally encourages a slower rate of eating, longer meal duration, and higher consumption of both food and drinks (15). When preferred music is heard, individuals stay longer, feel more comfortable and disinhibited, and are more likely to order a dessert or another drink (70). In contrast, when music (or ambient noise) is loud, fast, or discomforting, people sometimes spend less time in a restaurant (76). In some cases, an abbreviated meal can lead individuals to quickly clean their plates and overeat without monitoring the extent to which they are full (61, 92). Although more controlled fieldwork needs to be done in this area, it appears that both extremes (soft, comforting music as well as loud, irritating noise) increase consumption, but they do so in different ways.

Increased Effort Decreases Consumption

Effort is related to the ease, access, or convenience with which a food can be consumed. It is one of the strongest influences on consumption (58, 135). The effort it takes to obtain food often explains which foods people prefer and how much they will consume (149). Cafeteria studies show that people ate more ice cream when the lid of an ice cream cooler was left open than when it was closed (68), that they drank more milk when the milk dispenser was placed close to the dining area (60), and that they drank more water when a water pitcher was on their table than when it was further away (30).

Scores of studies have investigated effort and animal feeding (such as requiring animals to press bars to obtain food pellets), but surprisingly few have been conducted with humans (58). Notable exceptions include a study that showed obese people were much more likely to eat almonds if they were shelled versus unshelled (114). Another investigation found that obese subjects were more likely to use silverware than chopsticks (which require more of an effort) when compared to normal-weight patrons in Chinese restaurants (115). The same impact of effort was found in a study of nonobese secretaries who were given Hershey's kisses either on their desks or two meters away from their desk. When the candies were placed on their desks, secretaries ate 5.6 more chocolates a day than when they had to stand up and walk two meters for them (78). These results help corroborate initial findings regarding effort (37), particularly when foods are ready to eat (17).

Although these studies focused on physical effort, psychological effort may also play a role in consumption. Recent platewaste studies among U.S. soldiers indicate that once any component of a field ration is opened, it is generally completely consumed. Although the physical effort to open the small component packages in a field ration is minimal, a psychological barrier may prevent individuals from opening another item if they have already opened and eaten several of them. Follow-up lab studies suggest that people tend to eat less when offered multiple small packages than when offered a large package of the same volume. Part of the reason is that the smaller packages provide discrete stopping points for a person to reconsider whether he or she wants to continue eating (135).

Socializing InfluencesMeal Duration and Consumption Norms

It has been well established that the presence of other people influences not only what is eaten, but it can also increase how much is eaten (see Figure 3). Eating with familiar people can lead to an extended meal (4). In other cases, simply observing another's eating behavior—such as a role model (8), parent, friend, or even stranger (24)—can provide a consumption norm that can also influence how much the observer eats. These effects can be dramatic. De Castro has shown that meals eaten with one other person were 33% larger than those eaten alone (22), and consumption increases of 47%, 58%, 69%, 70%, 72%, and 96%

have been respectively associated with meals eaten with two, three, four, five, six, and seven or more people (23).

An increased amount is eaten at meals with familiar and friendly people because they can help make a meal relaxing, more enjoyable, and long. These meals can also reduce an individual's ability or motivation to monitor consumption. In contrast, eating with unfamiliar people can suppress food intake in situations where selfmonitoring and self-awareness is high, such as during job interviews or first dates (16, 71, 123).

Interestingly, as the number of eating companions increases, the average variability of how much is eaten may actually decrease (19). Pliner et al. (82) found that people eating alone ate less than those in groups of two or four, but that this was driven by the amount of time they spent dining. What is most interesting about this study is that as the number of people in the group increased, the variance in how much they ate appeared to decrease. That is, a person eating alone was likely to eat either much more or much less (on average) than when eating with a larger group. At least some part of this decrease in variance is likely to be a result of the consumption norms of the situation.

Indeed, simply viewing the behavior of others has been shown to have an implicit impact on consumption (39, 88). Studies have shown that students will vary the amount of cookies they eat (107) and the amount of water they drink (30), depending on how much fellow students are eating (88). The impact of these external social cues can be particularly strong on obese individuals (39).

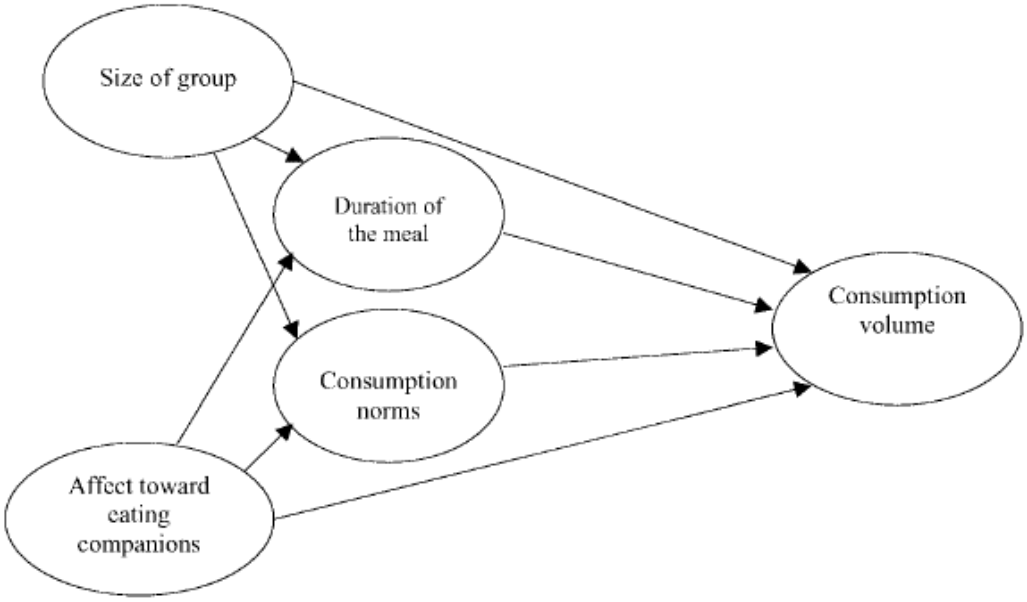

Figure 3 How social interactions influence food consumption volume.

Distractions Can Initiate, Obscure, and Extend Consumption

Distractions such as reading or watching television can increase consumption by initiating, obscuring, and extending consumption. Distractions can initiate scriptrelated patterns of food consumption that are uncorrelated with hunger; they can obscure one's ability to monitor consumption; and they can extend the duration of a meal.

It was noted above that a diary survey of obese people indicated that some had stopped eating simply because a television program had ended or because they had finished reading a magazine (130). Just as the completion of a television show or a magazine article can lead one to terminate a meal, a longer television show or a longer magazine article may prolong the duration of a meal past the point of satiation.

Whereas part of the overconsumption associated with distractions such as television and magazines can be related to longer meals, another part of it is due to how the distraction can obscure one's ability to accurately monitor how much has been eaten. One controlled

study showed that people who ate lunch while listening to a detective story ate 15% more than those who ate their lunch in silence (5).

Distractions such as television, reading, movies, and sporting events may simply redirect attention to the point where orosensory signals of satiation are ignored (89). Consistent with this theory, the key correlate of how much popcorn people ate in a Chicago movie theater was whether they claimed they paid more attention to the movie or to how much they ate (144). The more attention they paid to the movie, the more popcorn they ate.

In addition to the influence these distractions have on meal duration and on monitoring, they can also evoke consumption scripts that initiate consumption because they lead people to associate the distraction with food. In fact, one's consumption during these events—be it a hot dog at a ballgame, popcorn during a movie, or cookies during a favorite television program—might simply be influenced by behaviorally ingrained eating scripts or patterns. That is, eating in these situations might be related more to habit than to hunger. Indeed, participants in a two-week panel study were asked to indicate how hungry they were each time they ate a meal or snack. People who ate meals or snacks while watching television reported being less hungry than those who ate when they were not watching television (123). All of these findings are consistent with the basic notion that people may elect to snack in these distracting environments because such eating is part of a habitual consumption script and not because they are necessarily hungry. Rozin et al. showed that amnesiac patients who were told it was dinnertime ate a second complete meal only 10 to 30 minutes after having eaten a prior meal (109). Even if they are not physically hungry, simply thinking it is time to have a meal or a snack is enough to cause some people to eat (116, 147). For some people, one time to snack is when they turn on the television. Unfortunately, both children (25, 27) and adults (49, 128, 129) tend to snack more when watching television, and they may do so even if they are not physically hungry. Although it is frequently found that television viewing, food intake, and obesity are related (34, 54), these correlational studies are often confounded with factors such as a general lack of physical inactivity. Nevertheless, the studies do suggest an important relationship between activity and distracted consumption intake (126).

Yet this basic connection between distractibility and food intake may have an even more fundamental connection to obesity. Past research has indicated that obese people have a greater tendency to be distracted than nonobese people (93), and may eat even more than do normal-weight people in identical potentially distracting circumstances, be it watching a television program, reading a newspaper, or enjoying a conversation. In a media-rich, food-rich environment, distractionprone people will not be able to accurately monitor their consumption and are likely to overeat.

HOW THE FOOD ENVIRONMENT STIMULATES CONSUMPTION

The allure of ice cream in the freezer is much stronger for most than the allure of broccoli in the refrigerator. Food intake can often be related to the perceived taste or cravings associated with foods (84), and such cravings, especially for comfort foods, can differ across gender and across age groups (136). It is well supported that liking for a food can increase chewing and swallowing rates (6), and it is generally correlated with greater consumption (10, 65).

Despite this link between palatability and consumption, the availability of tasty, highly palatable foods is neither a necessary nor a sufficient cause for overconsumption (67). People can unknowingly overeat unfavorable foods as much as they do their favorites. This section examines the food-related environmental factors that influence consumption volume but are unrelated to palatability. These factors can be characterized as the Five S's of the food environment: salience, structure, size, whether it is stockpiled, and how it is served.

Salient Food Promotes Salient Hunger

Simply seeing (or smelling) a food can stimulate unplanned consumption (11, 20). For instance, when 30 Hershey's kisses were placed on the desks of secretaries, the candies placed in clear jars were consumed 46% more quickly than those placed in opaque jars (142). Similarly, some who were given sandwich quarters wrapped in transparent wrap were found to eat more than those who were given sandwiches in nontransparent wrap (50).

It had been believed that such increased intake of visible foods occurred because their salience served as a continuously tempting consumption reminder. While part of this may be cognitively based, part is also physiologically based. Simply seeing or smelling a favorable food can increase reported hunger (12, 47, 53, 121) and can stimulate salivation (41, 94), which can be correlated with greater consumption (73). Recent physiological evidence suggests that the visibility of a tempting food can enhance actual hunger by increasing the release of dopamine, a neurotransmitter associated with pleasure and reward (132). The impact of these cues can be particularly strong with unrestrained eaters (46).

Although seeing or smelling a food can make it salient, salience can also be internally generated (112). One food recall study suggested that eating bouts associated with internally generated salience may involve greater consumption volume than those associated with externally generated salience, such as the sight or smell of a food (133). That is, people who impulsively ate cookies when walking by a cookie dish reported eating fewer than those who more deliberately sought the cookies out. Another study manipulated the salience of canned soup by asking people to write a detailed description of the last time they ate soup. Those who increased their consumption salience of soup in this way intended to consume 2.4 times as much canned soup over the next two weeks than did their counterparts in the control condition (137).

Structure and Perceived Variety Can Drive Consumption

Rolls and her colleagues have shown that if consumers are offered an assortment with three different flavors of yogurt, they are likely to consume an average of 23% more yogurt than if offered only one flavor (100). This basic notion that increasing the variety of a food can increase the consumption volume of that food (69, 95) has been found across a wide range of ages (102) and across both genders (97, 99).

Recently, Kahn & Wansink have shown that si mply increasing the perceived variety of an assortment can increase consumption (52). In one study they gave people an assortment of 300 M&M candies that were presented in either seven or ten different colors. Although the taste of each color was identical, those who had been given a bowl with ten colors ate 43% more (91 versus 64 candies) over the course of an hour than those who had been given seven colors. Further evidence of how perceived variety (versus actual variety) can influence consumption was shown when people were offered either organized or disorganized assortments of six flavors of 300 jelly beans. Those offered the disorganized assortment rated the assortment as having more variety, and they ate 69% more jelly beans (22 versus 13) than those offered the organized assortment of identical flavors (52).

Even if the actual variety of the assortment is not increased, these studies suggest that simply changing the structure of an assortment (for example, the organization, duplication, or symmetry) can increase how much is consumed. One reason this occurs is that increases in perceived variety make a person believe he or she will enjoy the assortment more (see Figure 4). A second reason this occurs is that increasing the perceived variety can concurrently suggest an appropriate amount to consume (the consumption norm) in a particular situation.

For researchers, it is important to know that perceptions of variety (43, 44, 131)—and not just actual variety—can influence consumption. For consumers, it is more important to know that one can personally adjust, modify, or design the immediate food environment in order to help them control their intake.

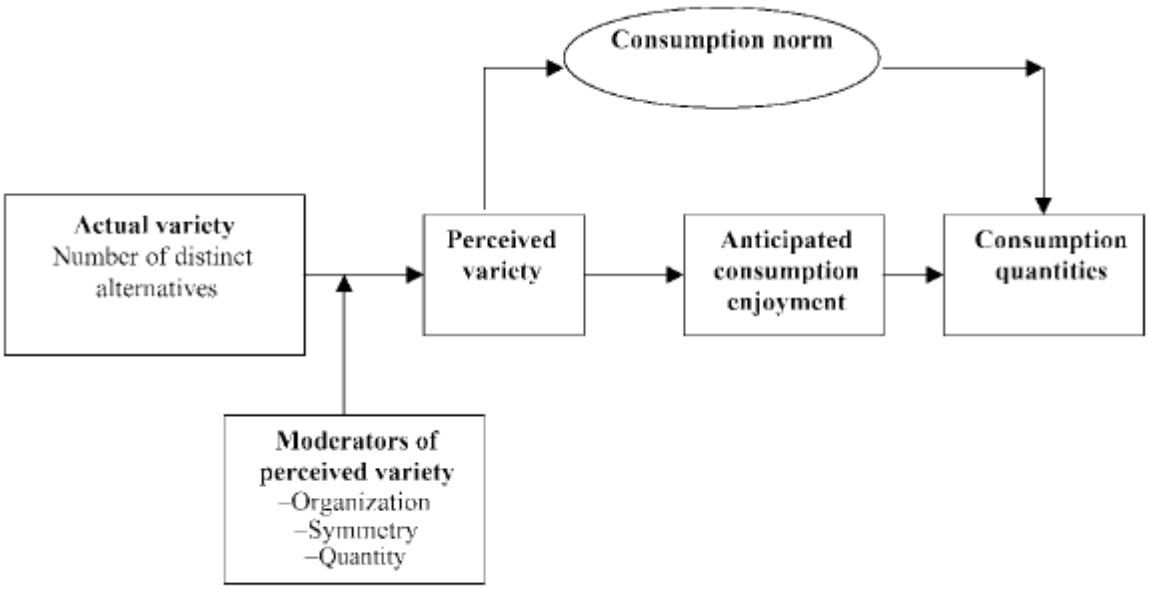

Figure 4 How structure and assortment variety influence consumption.

The Size of Packages and Portions Suggest Consumption Norms

There is overwhelming evidence that the size of food packaging and portions has steadily increased over the past 30 years (96, 151). Although this is a trend in much of the developed world, it is particularly common in the United States, and may help contribute to weight gain with some individuals (14, 36, 74). Rozin and his colleagues have shown that the size of packages and portions in restaurants, supermarkets, and even in recipes is much larger in the United States than in France, which is often considered to be a more food-centric country (110).

In relation this to consumption, it is well supported that the size of a package can increase consumption (134), as can the size of portion servings in kitchens (75, 103) and in restaurants (28). What is notable is that package and portion size can even increase the consumption of unfavorable foods. For instance, when moviegoers in a Philadelphia suburb were given either medium-size or large-size buckets of stale, 14-day-old popcorn, they ate 33.6% more popcorn from the larger buckets despite the poor taste of the popcorn (139). It would appear that environmental cues might sometimes be as powerful—within limits—as the taste of food itself. Package and portion sizes have a considerable impact on consumption. When packages are doubled in size, consumption generally increases by 18% to 25% for many meal-related foods (such as spaghetti), and 30% to 45% for many snackrelated foods (134). Such predictable increases in consumption occurred even when Rolls and her colleagues altered the energy density of the food (55). In effect, the volume of food eaten tends to be a better indicator of how full individuals report they feel than does the calorie density of the food (98, 99, 103).

Significant child development research by Birch and Fisher has shown that portion size first begins to influence children between the ages of three and five (9, 32, 101). The tendency of children to let portion size influence their consumption volume has been referred to as the "clean your plate" phenomenon or the completion principle (119). However, neither of these suggested mechanisms explains why large packages also increase the use of less-edible products such as shampoo, cooking oil, detergent, dog food, and plant food. Nor does it explain why large packages of M&Ms, chips, and spaghetti increase consumption in studies where even the smaller portions were too large to eat in one sitting (33, 134). In both general cases, people poured or consumed more even though there was no possibility of cleaning one's plate.

The more general explanation of why large packages and portions increase consumption may be that they suggest larger consumption norms (recall Figure 1). They implicitly suggest what might be construed as a "normal" or "appropriate" amount to consume. This would

also help explain why people consume more from half-filled large packages than they do from completely filled medium-sized packages that contain the same volume (134). Even if individuals do not clean their plates or finish the package, the larger size gives them liberty to consume beyond the point where they might have stopped with a smaller, but still unconstrained, supply.

Stockpiled Food Is Quickly Consumed

Having large stockpiles of food products at home (such as multi-unit packages purchased at wholesale club stores) can make those products more visible and salient than less-plentiful ones. Not only do stockpiled products take up a great deal of pantry space, they are often stored in salient locations until they are depleted to more manageable levels (17). Because visibility and salience can stimulate consumption frequency, it is often asserted that bulk buying or stockpiling contributes to overconsumption and may promote obesity.

To investigate this, Chandon & Wansink (17) stockpiled people's homes with either large or moderate quantities (twelve versus four) of eight different foods, and then monitored each family's consumption of these foods for two weeks. It was found that when convenient ready-to-eat foods were initially stockpiled, they were eaten at slightly twice the rate of nonstockpiled foods (an average of 112% faster). After the eighth day, however, the consumption of these stockpiled foods was similar to that of the less-stockpiled foods, even though plenty of both remained in stock. This eventual decrease was partly due to burnout or taste satiation (45), but was also the result of the inventory level dropping to the point where the foods were much less visually salient (137).

To investigate the link between the visibility of stockpiled food and obesity, Terry&Beck (127) compared food storage habits in homes of obese and nonobese families. Curiously, although their first study showed that stockpiled food tended to be visible in the homes of obese families, their second study showed the opposite. In general, however, recently stockpiled products tend to be visually salient, and this is one reason why they are frequently consumed (17, 137).

Serving Containers That AreWide or Large Create Consumption Illusions

More than 71% of a person's caloric intake is consumed using serving aids such as bowls, plates, glasses, or utensils (135). If a person decides to eat half a bowl of cereal, the size of the bowl can act as a perceptual cue that may influence how much he or she serves and subsequently consumes. Even if these perceptual cues are inaccurate, they offer cognitive shortcuts that can allow serving behaviors to be made with minimal cognitive effort.

Consider drinking glasses and the vertical-horizontal illusion. Piaget and others have shown that when people observe a cylindrical object (such as a drinking glass), they tend to focus on its vertical dimension at the expense of its horizontal dimension (56, 79, 90). Even if the vertical dimension is identical to that of the horizontal dimension, people still tend to overestimate the height by 20%. This general principle explains why people marvel at the height of the St. Louis Arch but not at its equal-size width.

In the context of drinking glasses, when people estimate how much soda they have poured into a glass, there is a fundamental tendency to focus on the height of the liquid that has been poured and to downplay its width. To prove this,Wansink & Van Ittersum conducted a study with teenagers at weight-loss camps (as well as a subsequent study with nondieting adults) and demonstrated that this basic visual bias caused teenagers to pour and drink 88% more juice or soda into short, wide glasses than into tall, narrow glasses that held the same volume (145). These teenagers believed, however, they poured half as much as they actually did. Similar results were found with veteran Philadelphia bartenders. When asked to pour 1.5 ounces (one shot) of gin, whiskey, rum, and vodka into short, wide (tumbler) glasses, the bartenders poured 26% more than when they poured into tall, narrow (highball) glasses (145).

What about the size of plates and bowls? The size-contrast illusion suggests that if we spoon four ounces of mashed potatoes on a 12-inch plate, we will underestimate its size compared to the same amount spooned onto an 8-inch plate (146). That is, the size contrast between the potatoes and the plate is greater when the plate is 12 inches in diameter than when it is 8 inches. A study at an ice cream social demonstrated consistent results. People who were randomly given 24- or 16-ounce bowls dished out and consumed an average of 31% more

ice cream when given the larger bowls (141). The size-contrast illusion also has an apparent effect on the use of spoons to measure medicine doses. When cough medicine was given to health center patients, the patients using larger spoons increased the dosagethey poured by 22% over the recommended dosage level (146). There is a basic tendency to use the size of plates, bowls, and spoons as an indication of how much should be served and consumed.

CONSUMPTION: THE NEXT GENERATION

Food consumption volume decisions are not the same as food choice decisions. The mechanisms behind each of these are very different. Although impressive resources have been invested in understanding food choice (85, 135), it is now becoming increasingly important to better understand what drives food consumption volume (86). Yet trying to address the overconsumption problem without a research strategy and without an eye on consumer welfare implications may invite scattered, idiosyncratic studies that simply end up proving the obvious. Given the concern of obesity (21, 59), research progress in this area will advance when researchers systematically address theoretical issues that are broader than single studies. Given the impact that environmental factors have on unknowing consumers, consumer welfare will advance if these discoveries help them to personally and effectively alter their environment without having to continually monitor how much they eat.

Research Advances Through Theory

Since the mid-1960s, researchers have been identifying many important factors correlated with food consumption. The next step needs to be in the direction of understanding the reasons behind food intake volume. The focus needs to explain why we eat the amount we eat, not simply show it. This entails more of a focus on developing and testing process models and theories of consumption. Doing so will allow more productive integration across studies and will help identify the more fundamental low-involvement drivers of consumption.

Early advances in better understanding these processes involved trying to determine whether obese individuals responded to environmental cues differently than nonobese individuals (75, 80, 81, 83, 113). Studies from the 1960s and 1970s indicated that obese people might be more responsive to many external cues, such as salience (106) and effort (50, 51). In returning to the impact of this earlier work, important process-related questions need to be addressed and low-involvement, nonmotivational issues need to be reconsidered (51, 77).

In redirecting our research efforts, two promising areas for study involve consumption norms and consumption monitoring. As illustrated in Figure 1, both at least partially mediate the impact of seemingly disparate drivers of consumption (such as package size, variety, and social influences).Keeping a focus on the mechanisms or processes behind consumption will help the interdisciplinary area of food consumption research progress in ways that can raise its profile and its impact on academia, on health practitioners, and ultimately on consumer welfare (86).

Part of this progress will entail better conceptualizing the consumption period being analyzed. Consumption is typically studied within a single-period feeding, such as during lunch, during snacks, or during a 30-minute lab experiment. It is important to realize, however, that multiperiod consumption involves both consumption quantity and consumption frequency and needs to be measured appropriately (125). Eating one chocolate each hour while at work influences daily intake as much as eating eight chocolates in one hour. Total consumption intake within a given time period (for instance, 24 hours) is comprised of how many occasions a food is eaten (frequency) and how much is eaten during each occasion (volume). This distinction is important because consumption norms and consumption monitoring impact frequency and consumption volume differently.Howfrequently a food is eaten can be influenced by the salience of the food and by the effort required to obtain and consume it. The volume of food that is consumed in a sitting is influenced by a wide range of other factors and is partly mediated through

Consumption norms and through the amount one believes he or she has consumed.

Understanding how environmental factors and situational cues bias estimates of consumption is a promising area for future research.

ConsumerWelfare Requires Changing Personal Environments

A wide range of individuals and institutions would like to better control a person's consumption of food for a wide range of reasons. Those in the hospitality industry want to decrease food costs (via serving size) without decreasing satisfaction. Those in public policy want to decrease waste. Those in health and nutrition want to decrease overconsumption. Those in strenuous field situations want to eliminate the fatigue associated with underconsumption. Those on restricted diets want to decrease calorie, fat, or sugar intake.

TABLE 1 Altering one's personal environment to help reduce consumption

How environmental factors influence consumption	How one's personal environment can be altered to help reduce consumption
The eating environment	
Eating atmospherics: Atmospherics influence eating duration	• Before completing a meal, have the breadbasket removed or have an entrée portion wrapped up "to go." The atmosphere of a long and relaxing dinner can then be enjoyed without the temptation to overeat. • Although soft music and candlelight can improve one's enjoyment of a meal, they have calorie intake consequences. Instead of lingering and eating a dessert, enjoy a cup of coffee in the pleasant atmosphere.
Eating effort: Increased effort decreases consumption	• Store tempting foods in less-convenient locations (such as in a basement or in a top cupboard). • Do not leave serving bowls and platters on the dinner table. Keep second servings a safe distance away.
Eating with others: Socializing influences meal duration and consumption norms	• Decide how much to eat prior to the meal instead of during it. Order smaller quantities (e.g., half-size portions) to avoid "keeping pace" during the meal. • Model the behavior of a person who appears to be eating the least or the slowest.
Eating distractions: Distractions can initiate, obscure, and extend consumption	• Discourage "grazing" by focusing only on food. Try to eat only when sitting down, and do this at a distraction-free table. • Before eating a distracting meal or snack (such as eating while watching television or reading the newspaper), pre-serve the portions and allow no "refills."
The food environment (the Five S's)	
Salience of food: Salient food promotes salient hunger	• Eliminate the cookie jar, or replace it with a fruit bowl. • Wrap tempting foods in foil to make them less visible and more forgettable. • Place healthier, low-density foods in the front of the refrigerator and the less healthy foods in the back.
Structure and variety of food assortments: Structure and perceived variety drives consumption	• Avoid multiple bowls of the same food (such as at parties or receptions) because they increase perceptions of variety and stimulate consumption. • At buffets and receptions avoid having more than two different foods on the plate at the same time. • To discourage others from over-consuming in a high-variety environment (such as at a reception or dinner party), arrange foods into organized patterns. Conversely, arrange foods in less-organized patterns to help stimulate consumption in the cafeterias of retirement homes and hospitals.

(*Continued*)

TABLE 1 (*Continued*)

How environmental factors influence consumption	How one's personal environment can be altered to help reduce consumption
Size of food packages and portions: The size of packages and portions consumption norms	• Repackage foods into smaller containers to suggest smaller consumption norms. • Plate smaller dinner portions in advance. • Never eat from a package. Always transfer food to a plate or bowl in order to make portion estimation easier.
Stockpiling of food: Stockpiled food is quickly consumed	• Out of sight is out of mind. Reduce the visibility of stockpiled foods by moving them to the basement or to a cupboard immediately after they are purchased. • Reduce the convenience of stockpiled foods by boxing them up or freezing them. • Stockpile healthy, low-energy-density foods to stimulate their consumption and to leave less room for their high-density counterparts.
Serving containers: Serving containers that are wide or large create consumption illusions	• Replace short wide glasses with tall narrow ones. • Reduce serving sizes and consumption by using smaller bowls and plates. • Use smaller spoons rather than larger ones when serving oneself or when eating from a bowl.

Consumption is a context where understanding fundamental behavior has immediate implications for consumer welfare (21). People are often surprised at how much they consume (145), and this indicates their consumption may be influenced at a basic level of which they are not aware or do not monitor. This is why simply knowing these environmental traps exist does not typically help in avoiding them (2, 48). Relying only on cognitive control (11) and on willpower (3) often yields disappointing results. Furthermore, consistently reminding individuals to vigilantly monitor their actions around food is not realistic (62). At best, continued cognitive oversight is difficult for people who are focused, disciplined, and concentrated; it is impossible for those who are not.

What can be done? The studies reviewed here illustrate how an individual can alter his or her personal environment so it does not have unintended effects on how much is eaten. For some, this might involve repackaging bulk food into singleserving containers, storing tempting foods in less-convenient locations, and plating more modest amounts of food prior to beginning a meal (and allowing no refills). For others, simply using narrow glasses and smaller plates might be all that is required to make their environment less conducive to overeating. Table 1 outlines ideas that can serve as initial steps in these directions.

The environment can work for people or against people. On one hand, it can contribute to the overconsumption of food by unknowing individuals. On the other hand, a personally altered environment can help individuals more effortlessly control their consumption and lose weight in a way that does not necessitate the discipline of dieting or the unintended consequences of external intervention.

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Priloga 5:

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SERVICE WITH A CITRIC NOTE: THE INTERACTION EFFECT OF BACKGROUND MUSIC AND AMBIENT SCENT ON THE PERCEPTION OF SERVICE QUALITY

Abstract
The authors study *in situ* the med iating 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 atmosheric, shopping center.

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 metapackaging 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 Luckett, 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 em otional 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 interplay s. 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 recog nized (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 med iated 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 co nnected 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; Herrington 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 additions 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 evalu ation 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; Donnovan and Ro ssiter, 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.

H1a: Slow tempo popular music is likely to elicit consumers' positive affect.

H1b: 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.

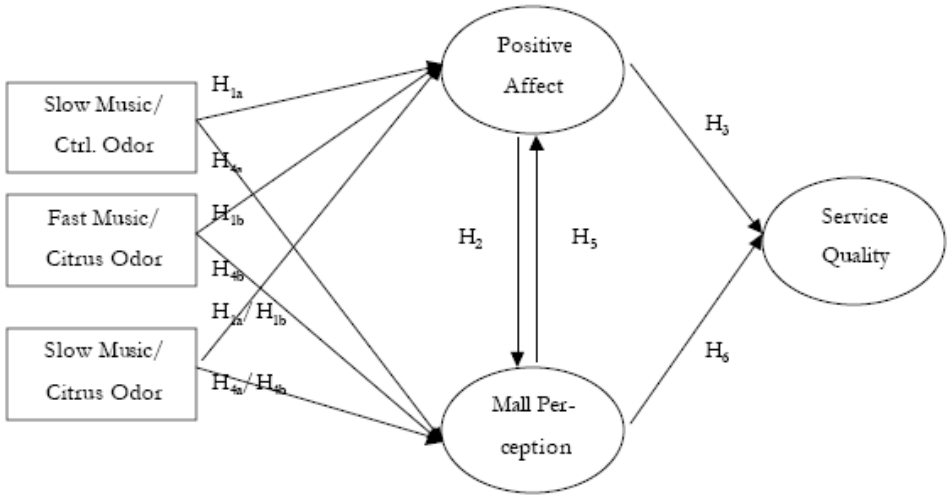
H4a: Slow tempo background music is more likely than fast music conditions to stimulate consumers' perception of the mall env ironment.

H4b: A light and pleasing ambient scent positively affects consumers' perception of the mall env ironment.

H5: Consumers' perception of the mall environment should favorable affect positive affect.

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

Figure 1: Research Hypotheses



Research Framework and Methodology

The experiment was cond ucted in a community shopping mall located in the Northeast. Data were collected in fours 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 (c2 = 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 (c2 = 6.59, df =3, pr = .086). The majority of participants was married (c2 = 4.99, df =3, pr = .172) and had a post-secondary formal education (c2 = 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 (c2 = 6.94, df =3, pr. = .074). There were no concentrations of young or old participants with different olfactory or auditory sensitivities.

Table 1: Cohort Profile

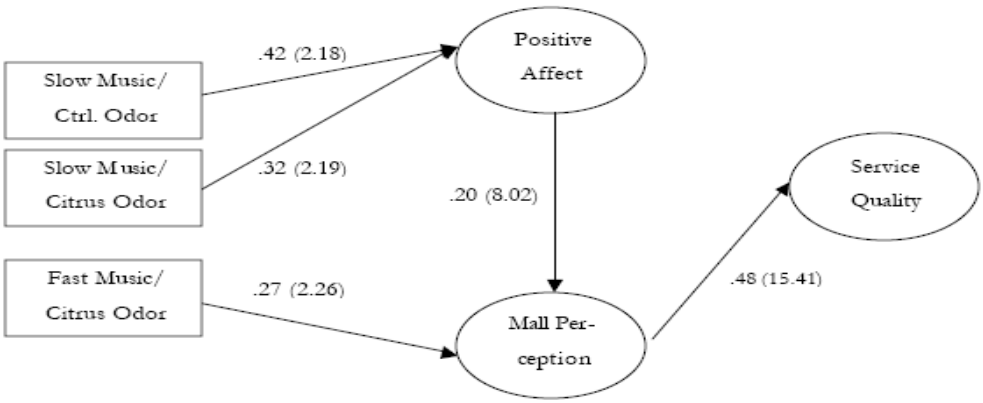
	Fast music/ Control odor	Slow music/ Control odor	Fast music/ Citrus	Slow music/ Citrus	Cohort	χ2/Pr for 3 df
Females	55%	70%	63%	67%	62%	16.06/.001
Median age	42	39	43	40	41	6.59/.086
Married	57%	51%	50%	60%	56%	4.99/.172
Education			Post-secondary			5.22/.157
Med. income	43.8	38.3	40.8	47.8	43.3	6.94/.074
Cohort	447	144	145	255	991	

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: 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 Meharabian, 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)

Research Findings

Research findings and fit statistics are available in Figure 2. As suggested in H1a 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 (H4b) affects sho ppers' 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).

The tested maximum likelihood model (c2 = 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 looses 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 no t 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; MacIn nes 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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