

Full Length Research Paper

Effects of utilitarian and hedonic atmospheric dimensions on consumer responses in an online shopping environment

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As in physical environments, one of the most important research topics is related to the effects of the characteristics of these new interactive virtual environments on different dimensions of human behaviour. This is particularly relevant in the case of consumer shopping behaviour on the internet. In this line, research on *webmosphere*, and specifically, the impact of utilitarian and hedonic atmospheric dimensions on shopper responses, is an interesting topic to study the more appropriate designs of website to improve the benefits of e-tailers. According to background literature, our research is focused on a 2x2 experimental study in order to analyse the effects of two different atmospheric web conditions (navigational structure -“guided hierarchical e-pathway” vs. “free network”- and music -“non-music” vs. “music”-) on internal and behavioural consumer responses within an online shopping situation. A website and a tracking behaviour methodology for a fictitious apparel retailer have been developed. Our results show that if web marketers design stores with freedom of movement during navigation and adequate music for their customers, they could be able to generate more positive responses on e-consumers (satisfaction and approach responses), and in turn, improve their online sales.

Key words: Webmosphere, navigational design, music, consumer responses, online shopping, MANOVA.

INTRODUCTION

Nowadays, one of the major development areas of merchandising is focused on the store atmosphere. The study of the influence of store atmosphere on consumers' affective state and behavioural responses is of a great interest for retail industry. In fact, the number of retailers has increased and, consequently, shopping options available for consumer are also being amplified. Within this environment, creating a differential advantage on the basis of merchandise, price, promotion and location (“traditional marketing”) are becoming troublesome for many retailers. Because of that increasing competition, retailers must be certain that their stores are up-to-date and reflect

an image that is appealing to their target markets (Baker et al., 1992). In fact, one of the most significant features of the total product is the place where it is bought or consumed. In some cases, the place, or more specifically the place atmosphere, is more influential than the product itself in the purchase decision (Kotler, 1973).

A considerable body of literature has been accumulated on atmospheric effects in traditional stores; however, the impact of these factors in online retail environments has not yet been well documented (Eroglu et al., 2003). Some studies posit that although the instrumental qualities or utilitarian elements of online shopping (for example, ease and convenience) are important predictors of consumers' attitudes and purchase behaviours, the hedonic aspects of the web medium could play an equally important role in shaping these behaviours (Childers et al., 2001). In fact, the physical environment

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has typically been conceptualized as a set of in-store variables such as music, lighting, colour, smell, and store layout, but the internet has created a new type of electronic physical environment (Koernig, 2003). However, not much systematic research attention has been given to the nature and effectiveness of online retailing, and specifically, to the role of the online environment characteristics in shaping consumer responses. Some work can be found related to the nature and the features of the medium (Hoffman and Novak, 1996) and users' processing of information in the virtual world (Schlosser, 2003), neglecting the study of the influence atmospheric cues on consumer responses. Moreover, given both the increasing number of online stores and shoppers and the importance of the study of atmospheric cues in brick-and-mortar retail, retailers must pay special attention to online stores design.

Our main objective in this research is to analyse the influence of two different atmospheric cues on shoppers' cognitive, emotional and behavioural responses in an online apparel shopping environment. Specifically, we will consider the *music* as hedonic variable and the *navigational structure* as utilitarian variable of web atmosphere (Eroglu et al., 2003; Dailey, 2002; Childers et al., 2001). A between-subjects experimental design is used to test our hypotheses, manipulating these two dimensions of web atmospherics. In addition, we developed an integrated methodology that allows the simulation, tracking and recording of subjects' behaviour within an online shopping environment under different atmospheric conditions. Finally, with this research, we also expect to derive practical implications from these relationships and comparisons in order to provide retailers with more information about their consumers' preferences in an online shopping environment.

LITERATURE REVIEW

The retail store is evolving from a simple outlet to an "interactive theatre" (Mathwick et al., 2001) in which consumers have different shopping experiences. In this context, the concept of *atmospherics*, used by Kotler (1973) "to describe the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability", is receiving an increasing managerial and research attention both in traditional and online retail contexts (Eroglu et al., 2003). In general, an atmosphere could be defined "as a collection of atmospheric cues" (Dailey, 2002).

Brick-and-mortar atmospherics

Several authors have studied the different elements of store atmosphere. Kotler (1973) grouped them around four senses: Visual factors (for example, colour, size,

shine, forms); hearing factors (music and sounds); smell factors (for example, scent); and sense of touch. Baker (1986) proposed a different typology including what she calls *merchandising management*. Specifically, she distinguished three groups of factors: (1) *ambience factors* (temperature, music, scent, lighting); (2) *design factors* (aesthetic elements -decor, colours, types of materials- and functional elements -floor design, displays, space sales); and (3) *social factors* (number and types of customers and sales personnel behaviour). Berman and Evans (1995) introduced two new elements: external design (shop window, entrance, and facade) and flow people into the store. In general, the features of store atmosphere can be grouped in five main dimensions (Turley and Milliman, 2000): External design, ambience conditions, functional internal design, aesthetic internal design, and social dimension.

Research suggests that atmospheric cues may be more influential than other marketing inputs that are not present at the point of purchase (Baker, 1986) and may be even more influential to the purchase decision than the product itself (Kotler, 1973). In fact, according to Frasquet et al. (2002), the creation of pleasant environments becomes a competitive retail strategy to attract more customers to store and to increase consumers experience in store. Many authors have analysed atmospherics in brick-and-mortar settings. Most of these works are focused in the *Mehrabian-Russell Affect Model* (1974) (M-R), which uses a stimulus-organism-response (S-O-R) paradigm within an environmental psychology context. The S-O-R paradigm proposes that cues within an environment cause behavioural responses (such as approach or avoidance) to the environment through altering subject affect, specifically, pleasure, arousal and sometimes dominance. Some works related to traditional atmosphere research are outlined in Table 1. Apart from the joint study of atmospheric elements within the offline store, empirical work in this area has examined specific atmospheric cues and their effects on shopper responses. For instance, researchers have been focused on cues such as music (Dubé and Morin, 2000), colour (Bellizi and Hite, 1992), and so on.

Webmosphere

Compared with their physical store cousins, e-stores offer more diverse product choices, individualized products and service information, shopping convenience, and privacy (Tsao and Chang, 2010).

The diffusion and the adoption of new technologies in our everyday lives make it possible that, as consumers, we can experience new forms and new profits for searching and purchasing goods and services (Alba et al., 1997). The relevant increasing number of online stores and shoppers (e-Marketer; Forrester Research) has caused an intensive development of e-commerce both in

Business to Consumer (B2C) and in Business to Business (B2B) transactions. In fact, the technology acceptance model (TAM) framework (Davis, 1989; Davis et al., 1992) could be considered the starting point to analyze the adoption of e-store because of the efficacy of this model to predict the adoption of any kind of technology (Mathieson, 1991; Venkatesh and Davis, 2000; Gefen et al., 2003a, b; Shih and Fang, 2004; Vijayasarathy, 2004; King and He, 2006) as well as in the social web environment (Willis et al., 2008).

According to the basic principles behind the rationality of the TAM approach, there is a direct and positive effect between attitude, intention to use, and final use of a technology that an individual decides to adopt. The relationship between attitude and intention to use an online system has been analyzed by various researchers in different contexts: Adoption of information technology and information systems (Davis, 1989; Davis et al., 1989; Mathieson, 1991; Taylor and Todd, 1995a, b; Bernadette, 1996; Harrison et al., 1997; Karahanna et al., 1999; Malhotra and Galleta, 1999; Chen et al., 2002; Van der Heijden, 2003; Bhattacharjee and Premkumar, 2004), web (Fenech, 1998; Lederer et al., 2000; Lin and Lu, 2000), e-commerce (Gefen and Straub, 1997, 2000; Bhattacharjee, 2000; Chen et al., 2002; Pavlou, 2002a, b), visit a website (Sánchez and Roldán, 2004; Pavlou and Fygenson, 2006), e-mail (Segars and Grover, 1993; Szajna, 1996; Gefen and Straub, 1997), mobile marketing (Sultan and Rohm, 2008), and, the most relevant for our study, the virtual community (Papadopoulou, 2007; Shin, 2008) and SNS (Willis et al., 2008). Based on technology acceptance paradigm, if consumers have a positive attitude toward these interactive media, the benefits of using online shopping in comparison with traditional channels are very relevant (such as interactivity and flexibility of the media to obtain information of products and services as well as the convenience, availability and accessibility of the web media itself) (Hoffman and Novak, 1996). In Spain, according to Communication Media Research Association (Observatory red.es, 2011), apparel and accessories products appears in the fourth position as top products bought through the Internet, having increased four positions from 2007.

As in physical environments, one of the most important questions to analyse is referred to the effects of the characteristics of these new interactive virtual environments on different dimensions of human behaviour. This analysis is particularly relevant in the case of consumer shopping behaviour on the internet (Hashim et al., 2010). In this sense, research on web atmospherics has been yet somewhat limited due to the novelty of the topic (Dailey, 2002). One general question proposed is, does the demonstrated effect of in-store environment on shopping behaviours and outcomes in traditional retailing hold in the online context? What, if any, is the role of atmospherics in online shopping (Eroglu et al., 2003)? *Web atmospherics, or webmosphere*, is defined by Dailey

(2002) as "the conscious designing of web environments to create positive effects (for example, positive affect, positive cognitions, etc.) in users in order to increase favourable consumer responses (for example, site revisiting, browsing, etc.). When marketers design web interfaces in order to entice consumers, they are utilizing web atmospherics".

One aspect of this new medium is the web site interface. The web interface is the portion of the web site that is visible to the web user (Dailey, 2002). According to Milliman and Fugate (1993), a web atmospheric cue is comparable to a brick-and-mortar atmospheric cue and can be defined as some web interface component within an individual's perceptual field that stimulates one's senses. Within the S-O-R ((stimulus-organism- response) paradigm, in the context of online retailing, stimulus is defined as "the sum total of all the cues that are visible and audible to the online shopper" (Mehrabian and Russell, 1974). We include the auditory dimension because it has become a standard feature on computers in the last years. Nevertheless, the online retail environment lacks some of the dimensions present in a real environment, such as temperature, smell, and textures (three of the five sensory appeals) which are defined by Baker (1986) and Bitner (1992). However, it possesses some other properties such as flexibility across time and space.

As in physical environment, to illustrate the influence of *webmosphere* on consumers, most authors uses the S-O-R paradigm and suggest that atmospheric cues influence consumers through altering their cognition and affect, which ultimately affects their behaviour (approach/avoidance) with respect to online shopping. These behaviours include browsing/not browsing the website and revisiting/not revisiting it (Eroglu et al., 2001, 2003; Dailey, 1999). More than the interface, the interaction the users have with the interface (usability, human-computer interaction) is a factor that may also prevent the users from performing their task (Norman, 1991; Carroll, 2003). So, within the context of online behaviour, a new concept appears: usability. Usability reflects the perceived facility for the navigation through the Internet (Davis, 1989). According to Nielsen (1994), the usability refers to the facility with which users are able to learn the use of a computer system and their satisfaction when it is easily used by them. The usability is definitely a quality attribute, which allows the user to easily use the system (Nielsen, 2003). Some works found that usability is a very important attribute to achieve global consumer satisfaction (Ranganathan and Ganapathy, 2002).

The traditional store designer's ability to appeal to all the shopper senses through a complex combination of ambient, structural, social, and aesthetic elements has now been constrained to a predominantly visual appeal through the screen. Given that the accepted classifications of the traditional store atmospherics cannot be entirely applicable to this context, some authors suggest

an alternative taxonomy. Eroglu et al. (2001) classify the environmental characteristics of the virtual store in two general categories. The first one, called *high task-relevant environment*, is defined as “all the site descriptors (verbal or pictorial) that appear on the screen which facilitate and enable the consumer’s shopping goal attainment”. The second category, called *low task-relevant environment*, “represents site information that is relatively inconsequential to completion of the shopping task”. Examples of high task-relevant cues are the descriptions of the merchandise, price, terms of sale, delivery, return policies, pictures of the merchandise, availability of sampling, and navigation aids. Within this frame, the usability is a high task-relevant cue. On the other hand, examples of low task-relevant cues are colours, borders and background patterns, typestyles and fonts, animation, music and sound, entertainment, amount of “white space”, icons, image maps, pictures other than the merchandise, indicators of secure connections/transactions, web counter, site awards, and affiliations. They use the M-R approach to test their hypotheses, including satisfaction as behavioural response. The affective and cognitive states, which are influenced by these online store’s atmospheric qualities, affect consumers’ responses to online shopping (Eroglu et al., 2001, 2003).

Schlosser (2003) analyses consumer responses related to the selection of products in two different contexts: computer environment and printed environment. She found that the mere presence of a computer caused people to think more and request more information about the product than in the printed context did. Furthermore, the attitudes of those in the computer context were more representative of both dimensions described in the advertisement, whereas the attitudes of those in the print context reflected the valence of the dimension that is typically used when evaluating the product. As in brick-and-mortar retail (although to a lesser extent) empirical work in this area has analysed specific atmospheric cues and their effects on shopper responses, mainly, in a service shopping environment. For instance, researchers have focused on individual web atmospheric cues such as structure of navigation (Dailey, 2002), the tangibility of service (Koernig, 2003) or music tempo by the use digital musical technology (Oakes, 2003).

HYPOTHESES

Taking into account all these previous research streams, our research is focused in the study of the following aspects: (a) the impact of navigational structure perceived by consumer, as an utilitarian dimension of the web medium (Dailey, 2002), on online consumer responses and (b) the influence of the music, as a hedonic dimension of web medium (Eroglu et al., 2001, 2003; Dailey, 2002), on online consumer responses (internal and behavioural).

The hypotheses would be better if re-phrased to show positive or negative impact of the variables (that is, the more understandable the navigational structure, the better the consumer response). The hypotheses are specified further.

Utilitarian dimension and consumer responses: Navigational structure

One important feature of the new media that differs from traditional shopping channels is the absence of the experience about the online store visit and the unfeasibility of examining a product prior to purchase. So, the effective design of web interface may lead to a competitive advantage for marketers (Alba et al., 1997). But, how can marketers design effective web interfaces? Web atmospherics may offer insight into this question (Dailey, 2002). Network navigation is defined as “the process of self-directed movement through the media involving nonlinear search and retrieval methods that permit greater freedom of choice” (Hoffman and Novak, 1996). In traditional retail environments, consumers look for desired products by identifying the spatial representations of the store’s layout and by recognizing how products are clustered by their common characteristics or through orientation aids (that is, directory maps, displays, aisle markers, store personnel and so on) (Titus and Everett, 1995).

In this context, the importance of the usability concept has caused the development of several measurement scales (Flavián et al., 2004). Specifically, the SUS scale (system usability scale), developed in 1986; the SUMI scale (software usability measurement inventory), used to assess the software quality or the MUMMS scale (Measuring the Usability of Multi-Media Systems), is similar to the SUMI scale. Moreover, Lin et al. (1997) propose a scale through which it is possible to measure the usability of websites and Schneiderman (1998) also proposes other usability measurement scale called *questionnaire for the usability evaluation* (Flavián et al., 2004). Usability in traditional environments is understood in a different form. In fact, some works have analysed the navigational abilities of individuals in physical stores and have demonstrated that these abilities are enhanced by simplified floor plans (Weisman, 1981), which arrange the store in different sections and subsections (Díez and Navarro, 2003). In contrast, the ability to navigate within a retail environment becomes even more critical in online contexts. Web sites generally follow “internal schemas” which are not known a priori by consumers. A home page may be followed by a varying layout of non-standardized subpages and constantly reconfigured which represents a unique navigational experience for consumer that is constantly being updated in this dynamic electronic environment (Childers et al., 2001). It can be perceived as a navigational control from the web marketer to the online consumer (Dailey, 2002). Consumer navigational

control is defined as “the degree to which the consumer can access information on an on-demand basis where the content, timing and sequence of the communication are under control of the consumer, as opposed to the marketer” (Fortin and Dholakia, 1999).

Dailey (2002) analyses the influence of restrictive navigation cues as a specific online *webmosphere* (Childers et al., 2001) variable. Dailey (2002) uses different kinds of navigation bars to characterize environments defined by different degree of restrictions in navigation facilities to the consumer. She uses the *theory of psychological reactance and the flow experience* to hypothesize that the restrictive navigation cues act as barriers that threaten web users’ control over web navigation, which, in turn, arouses negative consequences for the web marketer, specifically, negative emotion and attitudes to the web site and site avoidance behaviour.

Additionally, some research related to this topic suggests that an easy navigational structure (for example, high task relevant according to Eroglu et al., 2003; usefulness and ease of use –convenience-, according to Childers et al., 2001) have a positive effect on the internal and behavioural consumer responses. So, we propose that “*free network*” navigation structure of the web site means that consumer can move easily through the web site (that is, navigational bars and the same links to access the information in all sites) and, consequently, web marketer with restrictive navigational bars does not control the user. In contrast, in a web site with “*guided hierarchical e-pathway*” navigation structure the user only can use the “next” and “previous” navigational bars to move through the web site (that is, user is exposed to restrictive navigational bars). Then, we suggest the following hypothesis:

H₁: The users who are exposed to an online shopping environment with free network navigational structure will show affective responses more positive than those who are exposed to guided hierarchical e-pathway navigational structure in the web site.

In a broad sense, cognitive state refers to everything that goes in the consumers’ minds concerning the acquisition, processing, retention, and retrieval of information (Eroglu et al., 2001). So, cognitions describe “consumers’ internal mental processes and states, and include attitudes, beliefs, attention, comprehension, memory, and knowledge” (Ajzen and Fishbein, 1977). In the online shopping environment, the cognitive state concerns issues regarding how online shoppers interpret information provided on the screen to choose from alternative sites and products as well as attitudes toward the virtual stores (Eroglu et al., 2003). So, as cognitive state, we included in our research the consumers’ attitude (Eroglu et al., 2003) and questions related to learning about the web site and the knowledge acquired during the shopping experience. So, regarding cognitive responses we

propose the following hypothesis:

H₂: The users who are exposed to an online shopping environment with free network navigational structure will show cognitive responses more favourable than those who are exposed to guided hierarchical e-pathway navigational structure in the web site.

Satisfaction is a consumer’s affective state as a result of a global evaluation of all aspects that constitute a relationship (Sanzo et al., 2003). Literature distinguishes between attitudinal and behavioural satisfaction perspectives (Dick and Basu, 1994). So, our research is focused on the attitudinal satisfaction perspective because it is more related to the purchase intention (Shankar et al., 2003). Specifically, satisfaction is understood as a global evaluation or attitude as a result of relationships between store and consumer (Flavián et al., 2004). For this reason, we will consider the satisfaction as an internal state which is affected by usability (Flavián et al., 2004). So, we propose the following hypothesis:

H₃: The users who are exposed to an online shopping environment with free network navigational structure will show more satisfaction than those who are exposed to guided hierarchical e-pathway navigational structure in the web site.

As user’s behavioural responses, we have used two measurement variables: loyalty (Zeithaml et al., 1996; Bigné and Andreu, 2004; Flavián et al., 2004) and approach/avoidance behaviour toward the web site after user’s visit into this online store. Loyalty is defined as a behavioural promise regarding to product or service which leads to future purchases or, in contrast, the consumer can change of brand or service (Berné, 1997). Loyalty includes four aspects: (a) the customer is satisfied, (b) the customer receives value, (c) the customer purchases again and (d) the customer recommends the store to other people (Zeithaml et al., 1996). Jacoby and Chestnut (1978) analyse the loyalty through three kinds of categories: attitudinal (Opperman, 2000), behavioural (O’Mally, 1998) and mixed categories (Selin et al., 1988). Flavián et al. (2004) use behavioural scales to measure the loyalty toward a web site in which consumer have experience. They obtain a positive effect between web site usability and loyalty toward web site (mediated by satisfaction and confidence). All things considered, we focus our research toward the study of users’ loyalty toward apparel store after their visit in the web site and, thus, we suggest the following hypothesis:

H₄: The users who are exposed to an online shopping environment with free network navigational structure will show a loyalty level toward the online store bigger than those who are exposed to guided hierarchical e-pathway navigational structure in the web site.

Approach/avoidance responses are based on S-O-R paradigm (Merhabian and Russell, 1974). Approach behaviours refer to all positive actions that might be direct toward a particular setting, for example, intentions to stay, explore, and affiliate, while avoidance concerns the opposite (Mehrabian and Russell, 1974; Bitner, 1992). In traditional environments, some works (Donovan and Rossiter, 1982; Sherman et al., 1997) found that shoppers' environmental perceptions affected their approach behaviours in the form of time and money spent, returning, store exploration, and so on. Within the online shopping context, some works posit similar approach/avoidance behaviour depending on the perceived "store" environment and the mediating effects of individual traits and internal states (Eroglu et al., 2001, 2003). In online environments, these effects have been less studied but literature indicates online atmospheric cues affect approach/avoidance responses. However, the relationship between both dimensions is moderated by internal states, both in online environments with only utilitarian elements (Dailey, 2002) and in online environments with utilitarian and hedonic elements (Eroglu et al., 2001, 2003; Childers et al., 2001). In a more recent study, Azizi and Javidani (2010) obtained that e-attitude had positive effect on e-shopping intention. Taking into account these literatures, we propose the following hypothesis:

H₅: The users who are exposed to an online shopping environment with free network navigational structure will show more approach responses than those who are exposed to guided hierarchical e-pathway navigational structure in the web site.

Hedonic dimension and consumer responses: Music in the web

In traditional environments, research has shown that as many as one in four retail customers remain dissatisfied with checkout waits (Tom and Lucey, 1995), especially if waiting time is longer than expected. It has been suggested (Hornik, 1984; Taylor, 1994) that longer perceived waits result in less positive service evaluation. In fact, the music is frequently used by managers of service organizations as one of the helping elements to alleviate the frustration and boredom of consumers while they are waiting to receive their service. According to Oakes (2003), managers suggest that atmospheric music affects the following aspects: 1) according to the beat of the music the atmospheric music influence customers to eat (Caldwell and Hibbert, 2002); 2) affects customers' perceptions of the atmosphere of a store (Hui et al., 1997); 3) must cater to the preferences of different age segments (Yalch and Spangenberg, 1990); 4) can distract customers from cognitive tasks (Park and Young, 1986); 5) can facilitate interaction between customers and staff (Dube et al., 1995); 6) can drive customers

away from an establishment depending on if they like it (Donovan and Rossiter, 1982); 7) makes time pass more quickly when it is enjoyable (Wansink, 1992); 8) can convey an upscale or downscale image depending on the specific genre or format (Areni and Kim, 1993); 9) can make customers stay longer than they otherwise would (Milliman, 1982); 10) eliminates unacceptable silences (North and Hargreaves, 1998).

Some works are focused on the analysis of different aspects of music. For instance, Kellaris and Altsech (1992) identified a significant relationship between musical volume and perceived duration by subject during waiting time to receive a service. Other research suggests the existence of a significant relationship between musical tempo and temporal perception and satisfaction customer (Chebat et al., 1993; North and Hargreaves, 1998; Caldwell and Hibbert, 2002) by the use of digital musical technology (Oakes, 2003).

The new media represent an important opportunity for marketers (Alba et al., 1997) in order to offer to their consumers, a pleasant shopping experience. Hirschman and Holbrook (1982) describe consumers as either "problem solvers" or in terms of consumer seeking "fun, fantasy, arousal, sensory stimulation, and enjoyment". Both visions have been represented in a retail traditional context in order to compare the shopping functional perspective (Sherry et al., 1993) versus the shopping enjoyable perspective (Babin et al., 1994).

In an online context, this twofold characterization of motivations is consistent with the adoption of interactive shopping behaviour (Childers et al., 2001). Creating a more enjoyable environment may require the use of more powerful web languages, and the inclusion of images, video, colour, humour, sound, music, games, animation, and all of the other interactive aspects that could define an enjoyable experience. A technology oriented perspective that attempts to treat media shopping as cold information systems, rather than immersive, hedonic environments, is likely to be misguided, mainly for products with strong hedonic attributes, as can be the case of apparel (Childers et al., 2001).

Music or sounds are considered as *low task-relevant cues* (Eroglu et al., 2001, 2003) because they do not directly affect the completion of the task, although they can create an atmosphere that has the potential to make the shopping experience more pleasurable. So, we suggest the following hypothesis:

H₆: The users who are exposed to an online shopping environment with music will show affective responses more positive than those who are exposed to an online shopping environment without music.

Eroglu et al. (2001) found that, within online environments, *low task-relevant cues* affect positively, users' cognitive states. Because that concept includes several kinds of online atmospheric cues, our intention is focused in the analysis of a specific cue (such as music) and

whether it affects users' cognitive states (attitudinal process and learning/knowledge). So, regarding cognitive responses we propose the following hypothesis:

H₇: The users who are exposed to an online shopping environment with music will show cognitive responses more positive than those who are exposed to an online shopping environment without music.

In online environments, satisfaction has been tested by Eroglu et al. (2003) as a behavioural response, which includes measurement variables relating to loyalty and satisfaction toward web site. However, literature found that behavioural responses (for example, loyalty) are consequence of satisfaction, both in brick-and-mortar and in online environments (Zeithaml et al., 1996; Bigné and Andreu, 2004; Flavián et al., 2004). In fact, Vanhamme (2000) accepts customer's satisfaction as "a relative psychological state, which is a result of purchase/consumption experience". In spite of this conceptual difference, the most of works obtain that store atmosphere affects satisfaction and, in turn, behavioural responses (Childers et al., 2001; Eroglu et al., 2001, 2003; Bigné and Andreu, 2004; Wang et al., 2010). Thus, we propose the following hypothesis:

H₈: The users who are exposed to an online shopping environment with music will show more satisfaction than those who are exposed to an online shopping environment without music.

How is satisfaction going to be measured? Further, in measurement of variables, satisfaction items are specified; all items included within model per each construct analysed are specified in Tables 2 and 3. Finally, regarding behavioural responses, we proposed the following hypothesis, attending two groups of variables analysed (loyalty and approach/avoidance behavioural). Specifically, as regards users' loyalty toward online store after their visit in the web site, it is measured by Eroglu et al. (2003) as satisfaction measurement. However, according to earlier cited works, loyalty is considered as the consequence of the satisfaction (Zeithaml et al., 1996; Bigné and Andreu, 2004; Flavián et al., 2004). In spite of this conceptual difference, the most works posit that atmospheric cues (specifically, low-task relevant cues according to Eroglu et al., 2001, 2003) affect positively loyalty toward store, although this relationship is mediated by consumers' internal states. Taking everything into account, we suggest the following hypothesis:

H₉: The users who are exposed to an online shopping environment with music will show a loyalty level toward the online store higher than those who are exposed to an online shopping environment without music.

As with global studies about store atmosphere, some works found similar approach/avoidance responses when

supermarkets were exposed to different tempo of background music (Milliman, 1982; Oakes, 2003). Within the online shopping context, the model proposed by Eroglu et al. (2001, 2003) posits similar approach/avoidance behaviours depending on the perceived store environment and the mediating effects of individual traits and internal states. They analysed whether the online store information and the low-task relevant cues facilitate or impede the attainment of shopping goals and, in turn, whether the online shopper exhibited positive or negative behaviours toward the particular web site. Finally, they obtained that if it produced a rise of atmospheric cues (that is, high and low task relevant cues), the approach responses are also increased. Because our intention is focused on the study of specific atmospheric cue (that is, music), we suggest the following hypothesis:

H₁₀: The users who are exposed to an online shopping environment with music will show more approach responses than those who are exposed to an online shopping environment without music.

A MODEL OF ONLINE ATMOSPHERICS EFFECTS

As the main purpose of this research is to empirically test the influence of two specific atmospheric cues on online shopper responses and, to analyse the differences of response between the experimental groups, we propose an initial model based on the S-O-R paradigm suggested and empirically tested by Eroglu et al. (2003), as it is shown in Figure 1. In our model, we introduce three modifications relating to the Eroglu et al. (2003) model: (a) introduction of cognitive variables (learning and knowledge about the web site) to complement the cognitive states described by these authors in their model, (b) recognition of satisfaction as an internal state which affects behavioural responses, and (c) introduction of loyalty variable as additional behavioural response.

Experimental design

A 2 ("guided hierarchical e-pathway" versus "free network") × 2 ("non-music" versus "music") between-subjects experimental design was used to test the hypotheses above. In order to eliminate the effects of prior experience with a retailer, a fictitious store was elaborated exclusively for our research. This fictitious online shop offered fashion apparel for women and men. The content of online shop is based on a homepage (Nielsen, 2001; Schneiderman, 1998), which includes the same links and web sites as other online apparel stores.

Within this frame, we included two manipulations check, specifically, music and navigational structure of web site. The first one, music, is considered as hedonic dimension by Childers et al. (2001) and, according to Eroglu et al. (2001), music is an atmospheric factor considered as "low task-relevant" because it neither facilitates nor enables the consumers' shopping goal attainment and it, entices the consumer's affective, cognitive and behavioural responses. Music used in the experiment has been previously tested (pre-test) with a market proof with similar characteristics to final sample in order to analyse the most favourite kind of music to offer a pleasurable online visit for participants. After the pre-test was carried out in the same place of final experiment (that is, in a computer laboratory), we obtained that our pre-sample (mainly young people, specifically, university students) preferred pop music

Table 1. Main background literature about traditional store atmospherics.

Researcher	Research
Donovan and Rossiter (1982)	They adapted the M-R model to the retailing context. Their findings suggest that retail environmental stimuli impact consumers' emotional states, which then result in approach or avoidance behaviours toward the store
Buttle (1984)	The author posits that the manipulation of flow people into store improve the rotation of stocks and, consequently, sales volume is also increased
Ghosh and McLafferty (1987)	They suggested that the bigger sales space stimulates a more comfortable shopping to consumer and, consequently, it causes a growing of sales volume
Bitner (1990,1992)	She analysed the impact of physical surroundings on customers (1990, 1992) and employees (1990) as social elements and she presented a conceptual model that focused on the atmospheric qualities of service organizations. She proposed an interdisciplinary model based on the extended S-O-R paradigm and she identified three groups of environmental cues: ambient cues (defined as those affecting five senses, imperceptible or perceivable), layout and functionality (way in which store furniture, machinery, and equipment are arranged as well as their ability to facilitate consumer goals) and signs, symbols, and artefacts.
Donovan, Rossiter, Marcoolyn, and Nesdale (1994)	They demonstrated consumers' emotional states predict both attitudes and real shopping behaviour
Sherman, Mathur, and Smith (1997)	They proposed some consumer responses (that is, approach/avoidance responses) and measured relationships between atmosphere cues and consumer responses, which are mediated by internal states of consumer
Wakefield and Baker (1998)	They suggested that the internal architecture, the sales space and sections location cause positive sensations on consumer, increasing the desire of standing in the store and the hedonic value of the shopping
D'Astous (2000)	This author assesses the relationship between the store design and the likelihood that consumer go back to the store. Bad design of store increase the probability that consumer does not revisiting the store
Turley and Milliman (2000)	They identified over 60 published studies that found significant relationships between store atmospheres and consumer behaviour. In their study, they obtained atmospherics has been shown to influence consumer perceptions of retail products, store satisfaction and store approach/avoidance behaviours such as consumers' intention and decision to patronize a store and spend money in a store.
Newman, Yu, and Oulton (2002)	According these authors, consumers must be informed about the changes of the store to prevent consumers to feel uncomfortable
Thang and Tan (2002)	They authors posit that the attractive internal design, the décor and the facility of movement in store increase consumers' preferences to the store
Baker, Parasuraman, Grewal, and Voss (2002)	They researched the influence of multiple store environment cues on perceived merchandise value and patronage intentions
Dailey (2004)	The quality of physical and online environment affect on consumer behaviour
Kaltcheva and Weitz (2006)	Authors posit that the consumer's motivational orientation moderates the effect of the arousal produced by a store environment on the pleasantness of the environment.
Sands, Oppewal, and Beverland (2008)	This study indicates that the presence of an in-store event significantly increases consumer value perceptions and reported shopping behavior intentions

Table 1. Contd.

Vieira (2010)	This author obtained that there is a positive relationship between factors of centrality of visual aesthetic design (CVSA) and consumer satisfaction, loyalty, items bought, minutes visiting the store, and \$ spent; and that high (vs. low) CVSA consumers were more discriminating in their intentions, when the environment had a high arousal. The original value is to support the notion that consumers also evaluate, beyond products, visual aesthetic components in retail and that it plays a moderating role on consumer intention.
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Table 2. Multivariate tests: Internal states and behavioural responses.

Variable	Effect	Wilks' Lambda	F	Significance
Affective (emotion and attitude)	Navigation	0.954	2.650	0.090 (*)
	Music	0.909	1.716	0.125 (**)
	Navigation*Music	0.958	0.757	0.605
Cognitive (learning and knowledge)	Navigation	0.951	2.759	0.068 (*)
	Music	0.972	1.841	0.150 (**)
	Navigation*Music	0.982	0.966	0.384
Satisfaction	Navigation	0.971	1.875	0.148 (**)
	Music	0.923	1.746	0.131 (**)
	Navigation*Music	0.939	1.343	0.252
Loyalty	Navigation	0.977	1.242	0.293
	Music	0.978	1.231	0.296
	Navigation*Music	0.982	0.954	0.388
Approach/Avoidance responses and real shopping outcomes	Navigation	0.873	3.017	0.014 (*)
	Music	0.887	2.637	0.028 (*)
	Navigation*Music	0.918	1.869	0.106

(*) Computed using alpha = 0.1 (**) Computed using alpha = 0.15.

to navigate during the online shopping. The second manipulation factor, navigational structure, is considered as a utilitarian dimension due to it is necessary to execute shopping task (Eroglu et al., 2001, 2003; Childers et al., 2001; Dailey, 2002). Figure 2 shows a graphical representation of the web stimulus (navigation structure and music) used in this research. As a result of these *webmospheric* manipulations, four different web sites were defined, although the content is the same across all sites.

Subjects were randomly assigned to one of these experimental conditions. After subjects finished the task, they were asked to complete a final online questionnaire, which includes measures of satisfaction, attitude, affective and behavioural responses and web familiarity questions. Before starting our final experimental, a pre-test was conducted to ensure that subjects' responses give us different perception by inclusion of the above atmospheric manipulations. Finally, the web-based tool developed for this research included an automatic tracking process based on e-agent software to track and record all *click-throughs* and times related with the browsing behaviour during the experiment.

Sample and procedure

The final sample consisted of 200 people who were divided into

four groups (mixture of web manipulations). Subjects were randomly assigned to one of these experimental conditions. All people were asked to respond to the same questionnaire. All groups were exposed to the same environment conditions (date, place, space, etc.). In order to manipulate only the two web stimuli explained (that is, music and navigational structure), all groups were exposed to the same rest of web characteristics (that is, time of navigation; fictitious money offered to develop the online shopping; colour and rest of web characteristics different to music and navigational structure such as promotions, information about the store, etc.). So, members of each group had similar web experience except the manipulation of two stimuli in each case. Each environment was manipulated by the researcher using the music and navigational structure in order to contrast the hypotheses of the model proposed earlier. In order to analyse an equilibrate model, each group was consisted of 50 subjects. The sample was characterized by their experience with web environment. Age range was from 18 to 27 and, all of them were undergraduate students.

Measurement of variables

As independent variables, we considered the two manipulations explained earlier. As dependent variables, according to Eroglu et al.

Table 3. Tests of between-subjects effects: Internal states.

Factor	Affective variable	F	Significance	Mean difference (without factor-with factor)
Navigation	Annoyed/pleased	0.145	0.704	-0.071
	Bored/entertainment	0.493	0.484	-0.161
	Unhappy/happy	1.862	0.075	-0.286
	No arousal/stimulated	0.775	0.380	-0.196
	Excited/calm	0.042	0.837	0.036
Music	Annoyed/pleased	2.319	0.031	-0.286
	Bored/entertainment	1.369	0.245	-0.268
	Unhappy/happy	1.862	0.175	-0.286
	No arousal/stimulated	1.852	0.176	-0.304
	Excited/calm	0.170	0.681	0.071
Navigation * Music	Annoyed/pleased	0.000	1.000	
	Bored/entertainment	0.493	0.484	
	Unhappy/happy	1.047	0.308	
	No arousal/stimulated	2.826	0.096	
	Excited/calm	0.042	0.837	
Cognitive variable				
Navigation	Not worthwhile/worthwhile	1.605	0.208	-0.250
	No favourable/favourable	2.251	0.136	-0.268
	Negative/positive	0.679	0.412	-0.143
	Learning	3.105	0.081	-0.339
	Knowledge	4.931	0.028	-0.429
Music	Not worthwhile/worthwhile	3.275	0.073	-0.357
	No favourable/favourable	9.614	0.002	-0.554
	Negative/positive	5.133	0.025	-0.393
	Learning	0.077	.781	-0.054
	Knowledge	0.856	.357	-0.139
Navigation * Music	Not worthwhile/worthwhile	1.605	0.208	
	No favourable/favourable	2.251	0.136	
	Negative/positive	1.060	0.305	
	Learning	1.935	0.167	
	Knowledge	0.308	0.580	
Satisfaction variable				
Navigation	Satisfaction during navigation	0.448	0.505	-0.125
	Satisfaction due to security	0.078	0.780	-0.054
	Good design	0.027	0.870	-0.036
	Help	4.386	0.039	-0.429
	Satisfactory experience	0.126	0.724	-0.071
	Identified	0.287	0.594	0.125
	Music is relevant	0.063	0.803	-0.054
Music	Satisfaction during navigation	3.303	0.072	-0.339
	Satisfaction due to security	1.960	0.164	-0.268

Table 3. Contd.

	Good design	0.108	0.744	-0.071
	Help	0.122	0.728	-0.071
	Satisfactory experience	2.547	0.113	-0.321
	Identified	4.918	0.029	-0.518
	Music is relevant	1.565	0.214	-0.268
	Satisfaction during navigation	0.009	0.924	
	Satisfaction due to security	0.706	0.403	
	Good design	0.027	0.870	
Navigation * Music	Help	1.492	0.225	
	Satisfactory experience	0.000	1.000	
	Identified	0.708	0.402	
	Music is relevant	0.174	0.677	

Computed using alpha = 0.1.

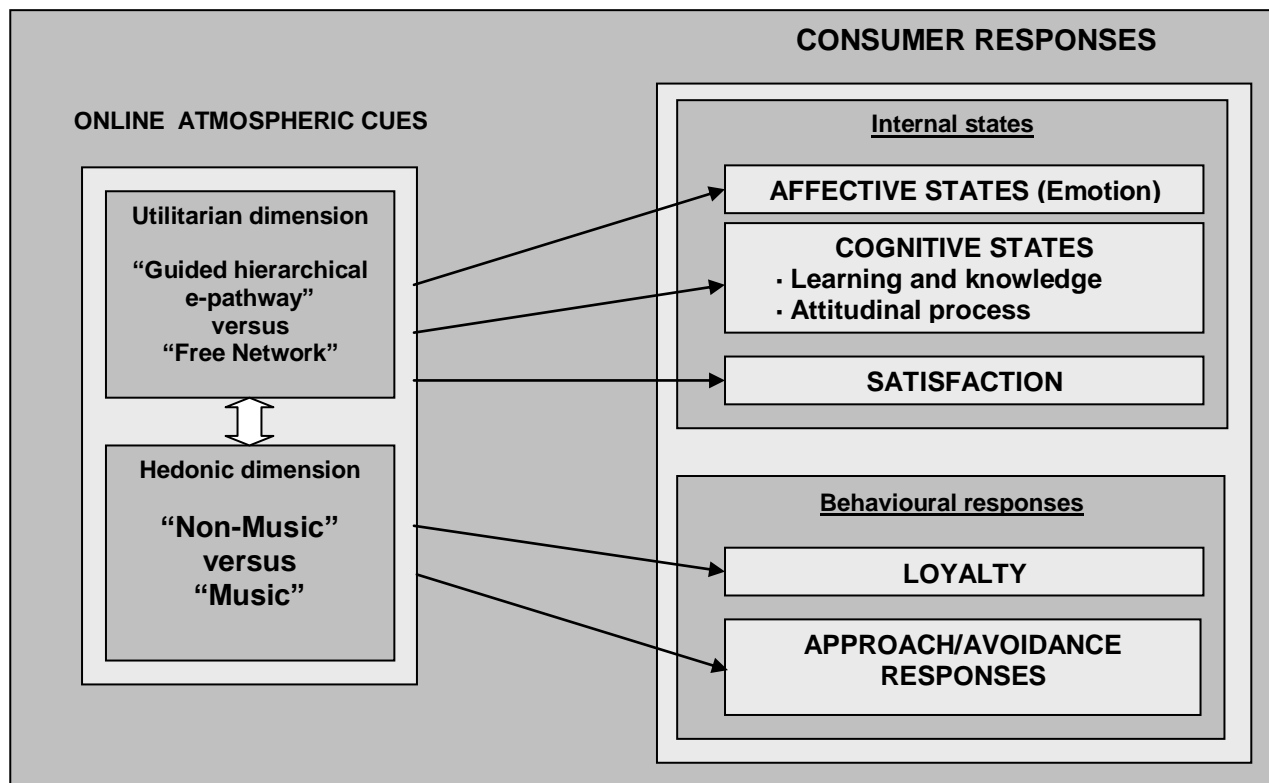


Figure 1. Effects of utilitarian and hedonic atmospheric dimensions on consumer responses in online shopping environments.

(2003), we considered the affective and cognitive internal states and behavioural responses to the online shopping experience (Tables 3 and 4). The affective responses were measured with the Mehrabian and Russell (1974) pleasure-arousal-dominance (PAD) scale. This scale is widely used in studies of environmental psychology and, although it is meant to represent the dimensions of emotional response rather than a complete typology of emotional responses, its simple structure and widespread use made it the appropriate choice in this context (Eroglu et al., 2003). Thus,

pleasure and arousal were measured with the five-point semantic differential items (that is, unhappy/happy; excited/calm, etc..) (Sherman et al., 1997; SUMI scale). Dominance was not included in our model based on Russell (1979). This author posits that pleasure and arousal adequately captures the range of appropriate emotional responses. However, according to Eroglu et al. (2001), in the online retail context, it is possible that shoppers choose online rather than traditional retail outlets for the increased control over the shopping situation. Therefore, online users may feel a decreased

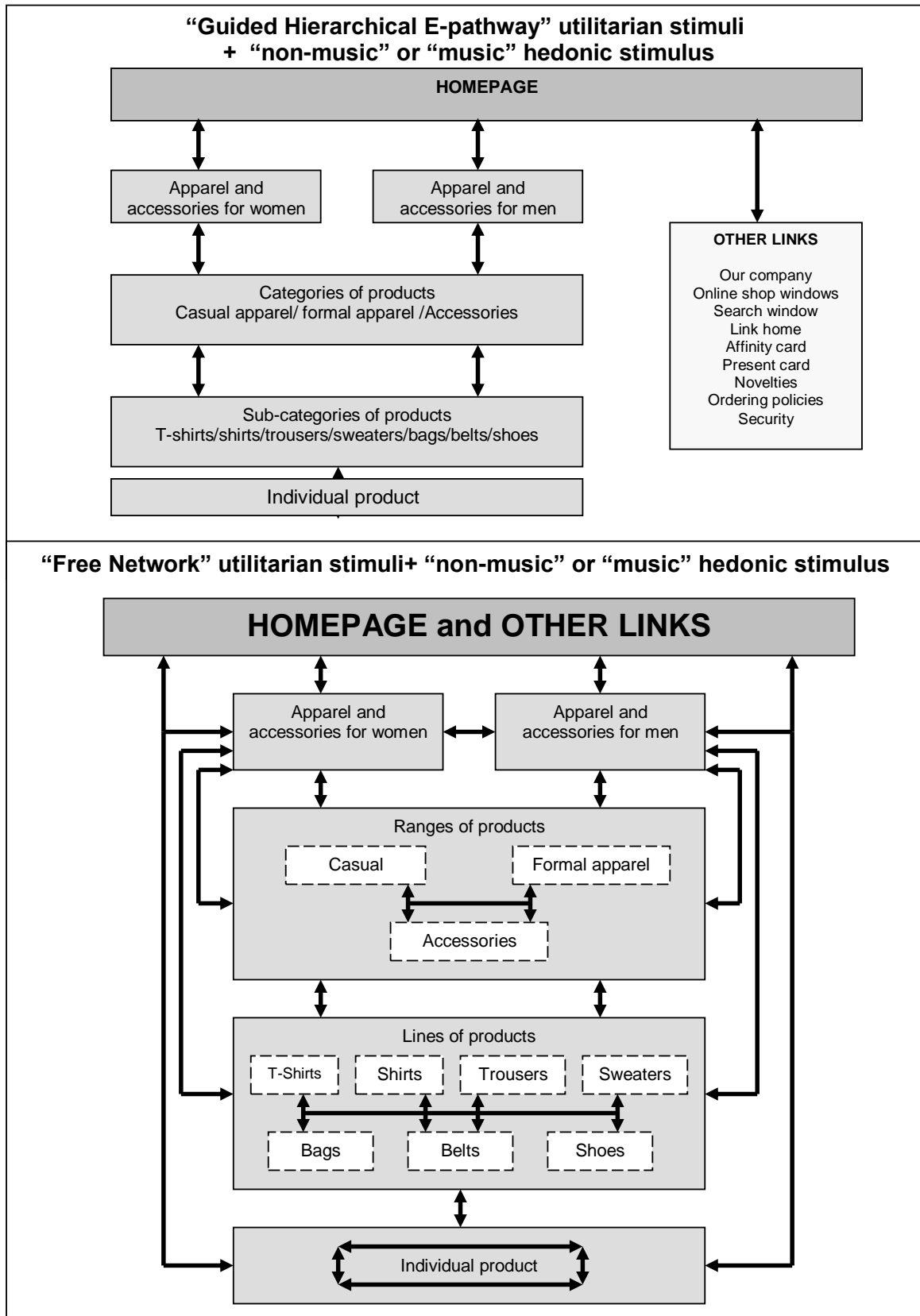


Figure 2. Utilitarian and hedonic stimulus analyzed in this web experimental research.

Table 4. Tests of between-subjects effects: Behavioural responses.

Factor	Loyalty variable	F	Significance	Mean difference (without factor-with factor)
Navigation	Revisiting	1.616	0.206	-0.286
	Recommendation to other people	2.503	0.117	-0.286
Music	Revisiting	0.000	1.000	-0.000
	Recommendation to other people	0.978	0.325	-0.179
Navig* Music	Revisiting	0.025	0.874	
	Recommendation to other people	0.978	0.325	
Approach/avoidance responses				
Navigation	Duration of visit	11.062	0.001	-8.518
	Products purchased	1.960	0.164	-0.679
	Money spent	4.330	0.040	-24.728
	I would have spent more money	0.710	0.401	-0.214
	I would have spent more time	0.168	0.683	-0.089
Music	Duration of visit	12.009	0.001	-8.875
	Products purchased	0.657	0.419	-0.393
	Money spent	1.775	0.186	-15.831
	I would have spent more money	0.178	0.674	-0.107
	I would have spent more time	0.060	0.806	-0.054
Navig * Music	Duration of visit	2.375	0.126	
	Products purchased	1.390	0.241	
	Money spent	0.071	0.790	
	I would have spent more money	1.598	0.209	
	I would have spent more time	0.007	0.935	

Computed using alpha = 0.1.

level of dominance in situations where download times are slow, when there is no way to contact the retailer for more information, when the site is difficult to navigate, or when links are missing or inactive. Nevertheless, Eroglu et al. (2003), after testing that variable, did not include it because reliability was low.

To test cognitive states, we have included two aspects: the interpretation of information provided on the screen by online consumer (that is, learning and knowledge of web site) and the attitudinal process (Eroglu et al., 2003). In forming these attitudes, the online shoppers address questions such as whether negative/positive shopping is an alternative for them (Eroglu et al., 2003; Childers et al., 2001).

Satisfaction, as other internal variable, was measured with five-point Likert-format items scale (for example, "I am satisfied with the navigation across this web site") (Cristóbal, 2002; SUMI scale; Flavián et al., 2004). The dependent variables used to test the behavioural responses were loyalty and approach/avoidance responses. Loyalty was measured by a Likert scale (five points) including the following questions: "I would probably go back to the site" and "I would recommend the site to other people" (Eroglu et al., 2001, 2003; Sherman et al., 1997; Bigné and Andreu, 2004; Dailey, 2002). Approach/avoidance responses were measured by a Likert scale (five points) including aspects such as "I would have

spent more money" and "I would have spent more time" (according to M-R model, 1974). Moreover, the web-based methodology allows us to track responses about "real times used during the shopping experience", "real money spent on shopping" and "real amount of product bought" (Sherman et al., 1997), which we will call 'real shopping outcomes'. In this frame, the technology acceptance model variables are used to test the model proposed, specifically, as behavioural responses, such as use and intention of use of e-store.

RESULTS

To test our hypotheses, firstly, we carried out a factorial analysis to build the constructs based on variables. After that, we analysed the availability and reliability of measurement scales. Secondly, a multivariate analysis of variance (MANOVA) and tests of between-subjects effects were developed. Our major objective was to analyse whether or not there were significant differences of behaviour between the groups and the effects of online

atmospheric manipulation cues on five kinds of dependent variables: Affective, cognitive, satisfaction (internal states), loyalty and approach/avoidance responses (behavioural responses).

In the significance contrast, we used the following statistics (Hair et al., 1999; Iacobucci, 1994): Wilks' Lambda, Pillai's Trace, Hottelling's Trace and Roy's Largest Root. Because these statistics explain the same effect, we decided to use only the Wilks' Lambda statistic. In addition to that, the researcher accepted $\alpha = 0.1$ (and 0.15) as significance level to contrast the model.

On the other hand, we evaluated the power observed and, according to Hair et al., 1999, we established a lowest power level (0.8). Moreover, it is necessary to notice size effect in the different contrast. This effect was measured by Eta Squared statistic (Iacobucci, 1994).

Affective responses: Pleasure and arousal

We have analysed the users' affective responses in both kinds of environments: With hedonic (such as music) and utilitarian (that is, navigational structure) dimensions. Thus, the following results were obtained:

i) Navigational structure effects: The multivariate test (Table 2) shows that the users who were exposed to an online shopping environment with "free network" navigational structure do not show affective responses more positive than those who are exposed to "guided hierarchical e-pathway" navigational structure in the web site ($\alpha < 0.1$). So, H_1 is not rejected. In fact, after individual analysis of affective variables (Table 3), we obtained that consumers who were exposed to "free network" navigational structure felt happier and stimulated than users whose navigational structure was "guided". In contrast, the rest of individual variables are not significant. The experimental environment which we have used in our research includes several factors such as psychological factors (beliefs and attitude), social factors (social support and social acceptance), and prior experience to explain intention to purchase apparel via the Internet (Yoh et al., 2003). In consequence, affective states would be affected by these factors (for example, prior experience with the internet apparel shopping) and then, the impact of web design (structure of information, use of search links, etc.) on user's affective states could be different.

ii) Music effects: In this case, the multivariate test (Table 2) also shows that the consumers who were exposed to online shopping environments with music show affective responses more positive than those who are exposed to an online shopping environment without music ($\alpha < 0.15$). Consequently, H_6 is not rejected. Specifically, the individual analysis of affective variables (Table 3) shows that there are significant differences between both groups regarding annoyed/pleased. Users show more positive

affective states (more pleased) in the shopping environment with music. Nevertheless, the rest of individual variables are not significant. It could be caused by the kind of music which was not to their liking (either too classic or too modern, either too fast or too slow, etc.) and, consequently, consumers felt annoyed with this manipulated atmospheric cue.

Cognitive responses: Attitudes, learning and knowledge

i) Navigational structure effects: The multivariate test about users' cognitive states (Table 2) shows that the users who were exposed to an online shopping environment with "free network" navigational structure show cognitive responses more favourable than those who are exposed to difficult navigational structure in the web site ($\alpha < 0.1$). So, H_2 is not rejected. Nevertheless, with a confidence level of 80%, this hypothesis would be accepted. Specifically, learning and knowledge is more favourable in "free network" navigation with more than 90% of confidence level (Table 3).

ii) Music effects: In contrast, the multivariate test (Table 2) shows that subjects who were exposed to online shopping environments with music show significant differences versus the users who are not exposed to this atmospheric manipulation, concerning their cognitive responses ($\alpha < 0.1$). Users show cognitive state more favourable in an environment with music. So, H_7 is not rejected. We used pop music in our experiments. Curiously, after an individual analysis about each one of cognitive variables (Table 3) we noticed that the questions relating to learning and knowledge not show significant differences between both groups of people who were exposed to free/guided navigational structure ($\alpha < 0.1$). In contrast, within online purchase environment whose manipulation element was the music, the variables which showed significant differences between both groups were the attitudinal variables ($\alpha < 0.1$), that is, worthwhile, favourable and positive. It could be due to navigation process and search information are more related to user's learning and knowledge process, while music as online atmospheric cue is more significant on users' attitudinal states (independently of the kind of music or musical tempo were or were not preferred by some consumers or others). Another variable which could affect on consumer is the beliefs toward online apparel shopping. In fact, according to Yoh et al. (2003), consumers who have more positive beliefs about Internet apparel shopping have more positive attitude toward Internet apparel shopping than consumers who have less positive beliefs about it.

Satisfaction

i) Navigation structure effects: The multivariate test

(Table 2) shows that the users who are exposed to an online shopping environment with “free network” navigational structure show more satisfaction than those who are exposed to “guided hierarchical e-pathway” navigational structure in the web site ($\alpha < 0.1$). So, H_3 is not rejected. In fact, after the individual analysis of satisfaction variables (Table 3) the results indicate that the question relating to “the navigation structure help me to move in online store” shows significant differences between both groups (confidence level more than 90%) with positive direction to a “free network” navigational structure. It indicates us that an easy navigational structure of the web site causes positive satisfaction on consumers. Nevertheless, the rest of individual variables are not significance. Aspects such as prior experience with the internet, previous experience with the purchase via the Internet, and more specifically, prior experience with the online apparel shopping affects to on intention to purchase. As this prior experience increases, the intention to apparel purchase via the internet is increased (Yoh et al., 2003). Therefore, prior experience with online purchase causes to user some knowledge about general navigational structure of any online apparel shopping. In our experiments all users had similar experience with the Internet but their online purchase experience and, above all, their apparel shopping experience through the Internet were different.

ii) Music effects: The multivariate test (Table 2) shows that the users who are exposed to an online shopping environment with music show more satisfaction than those who are exposed to an online shopping environment without music ($\alpha < 0.15$). Thus, H_8 is not rejected. After an individual analysis of satisfaction variables (Table 3) the results show us that the following questions cause significant differences between both groups ($\alpha < 0.1$): “I have felt satisfied during navigation”, “I feel identified with this online store” ($\alpha < 0.1$). Nevertheless, some individual variables are not significant ($\alpha > 0.1$). It could be caused by different causes: Music has been irrelevant in comparison to online apparel purchase decision process; kind of music was unpleased for some users, and so on. In contrast, although with a confidence level lower, people who were exposed to shopping environment with music admit “to have had a satisfactory experience” ($\alpha = 0.113$) and “the music is a relevant cue to design a store” ($\alpha = 0.214$).

Loyalty

i) Navigational structure effects: The multivariate test (Table 2) shows that the users who are exposed to an online shopping environment with “free network” navigational structure do not show a loyalty level toward the online store bigger than those who are exposed to “guided hierarchical e-pathway” navigational structure in the web site ($\alpha > 0.1$). So, H_4 is rejected. In this case,

previous experience with another online apparel store is a relevant aspect which affects significantly and negatively on intention to purchase apparel through the internet (Yoh et al., 2003). The navigational structure used by other online apparel stores in which users had had some experience could have caused negative effects in our experiment. Moreover, users’ internal states as satisfaction mediate the relationship between online atmosphere (specifically, usability) and loyalty (Flavián et al., 2004). It also could be the cause of our no significant results because we have measured directly both constructs. Nevertheless, after an individual analysis about the two loyalty variables included in our model (Table 4), we can see that users who were exposed to an easy navigational structure “would go back the web site” and “would recommend it to other people” (confidence level = 80 and 89%, respectively).

ii) Music effects: The multivariate test (Table 2) shows that consumers who are exposed to online shopping environments with music do not show a loyalty level toward the online store bigger than those who are exposed to an online shopping environment without music ($\alpha > 0.1$). Consequently, H_8 is rejected. In fact, one of the major factors that cause loyalty toward store, mainly in online environments, is the product’s brand. In this kind of environments, brand loyalty is stronger than in traditional environments. Moreover, brand loyalty is bigger in the products with more sensory attributes (Cebollada, 2004). Our experiments used a fictitious brand to prevent a possible brand loyalty effect. However, we think that it could have discouraged users’ purchase intention, independently of the existence or not of music in the online store.

Approach/avoidance responses

i) Navigational structure effects: The global results (Table 2) show that the users who are exposed to an online shopping environment with “free network” navigational structure show more approach responses than those who are exposed to difficult navigational structure in the web site ($\alpha < 0.1$). So, H_5 is not rejected. In the individual analysis (Table 4), the duration of visit and money spent in the website were higher in “free network” navigational structure than in “guided” one.

ii) Music effects: The multivariate test (Table 2) shows that the users who are exposed to an online shopping environment with music show more approach responses than those who are exposed to an online shopping environment without music ($\alpha < 0.1$). Thus, H_{10} is not rejected.

After an individual analysis of approach/avoidance responses (Table 4), we noticed that the duration of visit was longer in an online shopping context with music than without it. It caused the “fictitious” money spent in the experiment with music (confidence level = 88%).

CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

Most works of this research field has demonstrated that the growing of *webatmospheric* quality increases the level of pleasure felt by the shopper (Eroglu et al., 2001, 2003; Childers et al., 2001; Vrechopoulos, 2002; Bigné and Andreu, 2004; Dailey, 2004; Hernández et al., 2010, etc.). Most works of this issue have demonstrated the increasing atmospheric qualities of the online store web site increase the level of pleasure felt by the shopper (rephrase).

In this work, we have obtained that the two dimensions manipulated (that is, music and navigational structure of online store) affect significantly on shopping responses. It could offer relevant information to marketers because they are the people who have to design their stores to entice people into the shop. The major conclusion from this work is that online atmospheric cues influence on consumer's internal states and behavioural responses.

We have obtained significant results, probably useful, for e-tailers whose websites have to be revised constantly to attend the requirements of their users, as hedonic as utilitarian aspects. In all cases, affective, cognitive, and satisfaction variables as internal states of individual, are affected significantly and positively by music (appropriate to the profile of users). Moreover, we have obtained that users prefer (regarding their internal states) a free network so that they can move freely around the website versus a restrictive navigation where users do not perceive control about their online shopping. Approach responses (as behavioural responses analysed) have also been significant towards the inclusion of music and utilization of free network navigation. Nevertheless, loyalty (as behavioural response analysed) has not been significant in our experiment, probably because we have only focused this research on the analysis of direct relationships between online atmospheric cues manipulated and internal states and behavioural responses. It is an important limitation because, according to the literature (Hernández et al., 2010), the relationship between web atmospheric and behavioural responses is not direct: the internal states should be a construct which mediates the relationship between both of them. Moreover, we have not considered any moderate factors, which according to literature, could moderate the relationship between web atmospheric and consumer's internal states, such as perceived risk, atmospheric responsiveness, involvement with the internet and with online shopping, age, sex, level of experience with the internet and e-commerce, etc.

Apart from that limitation, aspects such as the kind of music and musical tempo, could cause different sensations on consumer and, in consequence, affect different way to them. In addition to that, the measurement variables included in the questionnaire, in spite of they have been tested by some authors, could be interpreted by subject in different form. Finally, we also want to

remark the idea that our research is focused in the study of two specific cues. Perhaps, the online atmospheric cues which we have chosen are not sufficiently significant as individual atmospheric elements and, in contrast, they are very significant in environments where all online atmospheric cues were studied together (Eroglu et al., 2003).

So, we suggest as future research, an improvement of the stated limitations and to realize other manipulations on web atmospheric (for example, animations of products, colour etc.), including mediator variables (for example, atmospheric responsiveness, perceived risk, etc.). Moreover, it would be appropriate to complement our empirical research including the study of relationships of influence between variables through a structural equations model (Bagozzi and Yi, 1989).

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REFERENCES

- Ajzen I, Fishbein M (1977). Attitude-behaviour relations: a theoretical analysis and review of empirical research. *Psychol. Bull.*, pp. 888-918.
- Alba J, Lynch J, Weitz B, Janiszewski C, Lutz R, Sawyer A, Wood S (1997). Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *J. Mark.*, 61(3): 38-53.
- Areni CS, Kim D (1993). The influence of background music on shopping behaviour: Classical versus top-40 music in a wine store. *Adv. Consum. Res.*, 20: 336-340.
- Azizi S, Javidani M (2010). Measuring e-shopping intention: An Iranian perspective. *Afr. J. Bus. Manage.*, 4(13): 2668-2675.
- Babin BJ, Darden WR, Griffin M (1994). "Work and/or fun: Measuring hedonic and utilitarian shopping value. *J. Consum. Res.*, 20: 644-656.
- Bagozzi R, Yi Y (1989). On the Use of Structural Equation Models in Experimental Designs. *J. Mark. Res.*, 26: 271-284.
- Baker J (1986). The role of the environment in marketing services: The consumer perspective. In Cepeil et al. (ed.). *The Services Challenge: Integrating for Competitive Advantage*, AMA, Chicago, pp. 79-84.
- Baker J, Grewal D, Levy M (1992). An experimental approach to making retail store environmental decisions. *J. Retail.*, 68(4): 445-460.
- Baker J, Parasuraman A, Grewal D, Voss GB (2002). The influence of multiple store environment cues on perceived merchandise value and patronage intentions. *J. Mark.*, 66: 120-141.
- Bellizzi JA, Hite RE (1992). Environmental colour, consumer feeling purchase likelihood. *Psychol. Mark.*, 9: 347-363.
- Berman B, Evans J (1995). *Retail management: A strategic approach*. Prentice-Hall, Englewood cliffs.
- Bernadette S (1996). Empirical evaluation of the revised technology acceptance model. *Manage. Sci.*, 42(1): 85-93.
- Berné C (1997). Modelling poscompra: satisfaction and loyalty [Modelization of post-purchase: Satisfaction and loyalty]. In Múgica JM and Ruiz S (eds.). *El comportamiento del consumidor*. Ariel, Barcelona, pp. 163-180.
- Bhattacharjee A (2000). Acceptance of e-commerce services: The case of electronic rokerages. *IEEE Trans. Syst. Man. Cyber. Soc – Part A: Syst. Hum.*, 30 (4): 411-420.

- Bhattacharjee A, Premkumar G (2004). Understanding changes in beliefs and attitude toward Information Technology usage: A theoretical model and longitudinal test. *MIS Q.*, 28(2): 229-254.
- Bigné E, Andreu L (2004). Emociones, satisfacción y lealtad del consumidor en entornos comerciales [Emotions, satisfaction and loyalty of consumer in commercial environments]. *Distrib. Consum.*, pp. 77-87.
- Bitner M (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *J. Mark.*, 54: 69-82.
- Bitner M (1992). Servicescapes: The impact of physical surroundings on customers and employees. *J. Mark.*, 56: 57-71.
- Buttle F (1984). Merchandising. *Eur. J. Mark.*, 18(6/7): 104-123.
- Caldwell C, Hibbert SA (2002). The influence of music tempo and musical preference on restaurant patrons' behaviour. *Psychol. Mark.*, 19: 895-917.
- Carroll JM (2003). *HCI Models, Theories and Frameworks: Toward a Multidisciplinary Science*. San Francisco: Morgan Kaufmann publishers.
- Cebollada JJ (2004). El poder de la marca en canales online y físico. Un estudio de la lealtad de marca en supermercados virtuales y físicos [The power of brand in online and offline channels. An study of loyalty towards brand in virtual and physical supermarkets]. *Proceedings XVI Encuentro de Profesores Universitarios de Marketing*. Alicante, pp. 821-827.
- Chebat JC, Gelinat-Chebat C, Filiatrault P (1993). Interactive effects of musical and visual cues on time perception: an application to waiting lines in banks. *Percep. Motor Skills*, 77: 995-1020.
- Chen L, Gillenson M, Sherrel D (2002). Enticing online consumers: An extended technology acceptance perspective. *Inform. Manage.*, 39: 705-719.
- Childers TL, Carr CL, Peck J, Carson S (2001). Hedonic and utilitarian motivations for online retail shopping behaviour. *J. Retail.*, 77: 511-535.
- Cristóbal E (2002). The influence of perceived quality in the design of the virtual setting: development of a measuring instrument [Influence of perceived quality in the online store design: Development of measurement tool]. *Proceedings ACEDE*, Spain.
- D'astous A (2000). Irritating aspects of the shopping environment. *J. Bus. Res.*, 49: 149-156.
- Dailey I (1999). Designing the world we surf in: a conceptual model of web atmospherics. In Brown S, Sudharshan D (eds.), *AMA educator's proceedings*. Chicago, p. 225.
- Dailey L (2002). Navigational web atmospherics. Explaining the influence of restrictive navigation cues. *J. Bus. Res.*, 57(54): 1-9.
- Dailey L (2004). Navigational web atmospherics. Explaining the influence of restrictive navigation cues. *J. Bus. Res.*, 57(54): 1-9.
- Davis FD (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.*, 13(3): 319-340.
- Davis FD, Bagozzi RP, Warsaw PR (1989). User acceptance of computer technology: A comparison of two theoretical models. *Manage. Sci.*, 35(8): 982-1003.
- Davis FD, Bagozzi RP, Warsaw PR (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *J. Appl. Soc. Psychol.*, 22(14): 1111-1132.
- Davis FD (1989). Perceived usefulness, perceived ease of use and user acceptance of Information Technology. *MIS Q.*, 13(3): 319-340.
- Dick AS, Basu K (1994). Customer loyalty: Toward an integrated conceptual framework. *J. Acad. Mark. Sci.*, 22(2): 99-113.
- Díez E, Navarro A (2003). Disposición del punto de venta [Layout of the store]. *Distrib. Cons.*, 5-22.
- Donovan RJ, Rossiter JR, Marcolyn G, Nesdale A (1994). Store atmosphere and purchasing behaviour. *J. Retail.*, 70(4): 283-294.
- Donovan RJ, Rossiter JR (1982). Store atmosphere: an environmental psychology approach. *J. Retail.*, 58(1): 34-57.
- Dubé I, Chebat JC, Morin S (1995). The effects of background music on consumers' desire to affiliate in buyer-seller interactions. *Psychol. Mark.*, 12(4): 305-319.
- Dubé L, Morin S (2000). Background music pleasure and store evaluation. Intensity effects and psychological mechanism. *J. Bus. Res.*, 54: 107-113.
- Eroglu SA, Machleit KA, Davis LM (2001). Atmospheric qualities of online retailing: A conceptual model and implications. *Special Issue on Retail Strategy and Consumer Decision Research*. *J. Bus. Res.*, 54: 177-184.
- Eroglu SA, Machleit KA, Davis LM (2003). Empirical testing of a model of online store atmospherics and shopper responses. *Psychol. Mark.*, 20(2): 139-150.
- Fenech T (1998). Using perceived ease of use and perceived usefulness to predict acceptance of the World Wide Web. *Comp. Network ISDN Syst.*, 30: 629-630.
- Flavián C, Guinalíu M, Gurrea R (2004). Análisis empírico de la influencia ejercida por la usabilidad percibida, la satisfacción y la confianza del consumidor sobre la lealtad a un sitio web [Empirical analysis of influence caused by perceived usability, satisfaction and trust of consumer on loyalty towards a website]. *Proceedings XVI Encuentro de Profesores Universitarios de Marketing*. Alicante, pp. 209-226.
- Fortin DR, Dholakia R (1999). Examining the effects of interactivity on social presence and involvement with an online advertisement. In *Marketing Communications and Consumer Behaviour*, *Proceedings of the Third International Research Seminar*, France.
- Frasquet M, Vallet T, Gil I (2002). Key factors in shopping centre management: Evidence from Spain. *Int. Rev. Ret. Distrib. Consum. Res.*, 12(4): 337-354.
- Gefen D, Karahanna E, Straub DW (2003b). Trust and TAM in online shopping: An integrated Model. *MIS Q.*, 27(1): 51-90.
- Gefen D, Karahanna E, Straub, DW (2003a). Inexperience and experience with online Stores: The importance of TAM and Trust. *IEEE Trans. Eng. Manage.*, 50(3): 307-321.
- Gefen D, Straub DW (1997). Gender differences in the perception and use of E-mail: An extension to the technology acceptance model. *MIS Q.*, 21(4): 389-400.
- Gefen D, Straub DW (2000). The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. *J. Assoc. Inform. Syst.*, 1(8): 1-28.
- George BP, Yaoyuneyong G (2010). Impulse buying and cognitive dissonance: A study conducted among the spring break student shoppers. *Young Cons.: Ins. Ideas Res. Mark.*, 11(4): 291-306.
- Ghosh A, McLafferty S (1987). *Location strategies for retail and service firms*. Lexington books, Lexington.
- Hair J, Anderson R, Tatham R, Black W (1999). *Análisis multivariante [Multivariate Analysis]*. Prentice-hall, madrid.
- Harrison DA, Mykytyn PP, Riemenschneider CK (1997). Executive decisions about adoption of information technology in small business: Theory and empirical tests. *Inform. Syst. Res.*, 8(2): 171-195.
- Hashim F, Alam GM, Siraj S (2010). Information and communication technology for participatory based decision-making-E-management for administrative efficiency in Higher Education. *Int. J. Phys. Sci.*, 5(4): 383-392.
- Hernández B, Jiménez J, Martín MJ (2010). Customer behavior in electronic commerce: The moderating effect of e-purchasing experience. *J. Bus. Res.*, 63: 964-971.
- Hirschman EC, Holbrook MB (1982). Hedonic consumption: Emerging concepts, methods and propositions. *J. Mark.*, 46(3): 92-101.
- Hoffman DL, Novak TP (1996). Marketing in hypermedia computer-mediated environments: conceptual foundations. *J. Mark.*, 60: 50-68.
- Hornik J (1984). Subjective vs. Objective time measures: A note on the perception of time in consumer behaviour. *J. Consum. Res.*, 11: 615-619.
- Hui MK., Dubé I, Chebat JC (1997). The impact of music on consumer's reactions to waiting for services. *J. Retail.* 73(1): 87-104.
- Iacobucci D (1994). Analysis of experimental data. In Bagozzi RP (ed.). *Principles of Marketing Research*, Blackwell, Cambridge, MA, pp. 224-278.
- Jacoby J, Robert W (1978). *Brand loyalty measurement and management*. New York: John Wiley.
- Kaltcheva VD, Weitz BA (2006). When should a retailer create an exciting store environment?. *J. Mark.*, 70: 107-118.
- Karahanna E, Straub DW, Chervany NL (1999). Information Technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Q.*, 23(2): 183-213.
- Kellaris JJ, Altsech MB (1992). The experience of time as a function of musical loudness and gender of listener. *Adv. Consum. Res.*, 19: 725-729.

- King WR, He J (2006). Understanding the role and methods of meta analysis in IS research. *Com. AIS*, 43: 740-755.
- Koernig S (2003). E-Scapes: The electronic physical environment and service tangibility. *Psychol. Mark.*, 20(2): 151-167.
- Kotler P (1973). Atmospherics as a marketing tool. *J. Retail.*, 49(4): 48-64.
- Lederer AL, Maupin DJ, Sens MP, Zhuang Y (2000). The technology acceptance model and the World Wide Web. *Decis. Supply Syst.*, 29: 269-282.
- Lin CC, Lu H (2000). Towards an understanding of the behavioral intention to use a web site. *Int. J. Inform. Manage.*, 20: 197-208.
- Lin H, Choong Y, Salvendy G (1997). A proposed index of usability: A method for comparing the relative usability of different software systems. *Behav. Inform. Technol.*, 16(4/5): 267-278.
- Malhotra Y, Galletta DF (1999). Extending the technology acceptance model to account for social influence: Theoretical bases and empirical validation. *Proceedings of the 32nd Annual Hawaii International Conference.*
- Mathieson K (1991). Predicting user intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior. *Inform. Syst. Res.*, 2(3): 173-191.
- Mathwick C, Malhotra N, Rigdon E (2001). Experiential value: Conceptualization, measurement, and application in the catalogs and Internet shopping environment. *J. Retail.*, 77: 39-56.
- Mehrabian A, Russell JA (1974). *An approach to environmental psychology.* Cambridge, MA: MIT Press.
- Milliman R, Fugate D (1993). Atmospherics as an emerging influence in the design of exchange environments. *J. Mark. Manage.*, 3: 66-74.
- Milliman RE (1982). Using background music to affect the behaviour of supermarket shoppers. *J. Mark.*, 42(2): 86-91.
- Newman AJ, Yu D, Oulton D (2002). New insights into retail space and format planning from customer-tracking data. *J. Retail. Consum. Serv.*, 9(5): 253-258.
- Nielsen J (1994). *Usability engineering.* Morgan Kaufmann: San Francisco.
- Nielsen J (2001). Homepage usability: 55 websites deconstructed. *New Riders.*
- Nielsen J (2003). Usability 101. <http://www.useit.com>
- Norman D (1991). Cognitive Artifacts. In Carroll JM (ed). *Designing Interaction: Psychology at the Human-Computer Interface.* Cambridge, pp. 17-38
- North AC, Hargreaves DJ (1998). The effect of music on atmosphere and purchase intentions in a cafeteria. *J. Appl. Soc. Psychol.*, 28: 2254-2273.
- O'mally I (1998). Can loyalty schemes really build loyalty? *Mark. Intel. Plann.*, 16(1): 47-55.
- Oakes S (2003). Musical tempo and waiting perceptions. *Psychol. Mark.*, 20(8): 685-705.
- Observatory red.es (2011). Comercio electrónico B2C 2010 [Electronic Commerce B2C 2010] [online] <http://www.ontsi.red.es/hogares-ciudadanos/articulos/129>.
- Opperman M (2000). Where psychology and geography interface in tourism research and theory. In Woodside AG, Crouch GI, Mazanec JA, Opperman M, Sakai MY (eds.). *Consumer psychology of tourism, hospitality and leisure.* CABI Publishing, Wallingford, UK.
- Papadopoulou P (2007). Applying virtual reality for trust-building ecommerce environments. *Virtual Reality*, 11(2): 107-127.
- Park CW, Young, SM (1986). Consumer response to television commercials: The impact of involvement and background music on brand attitude formation. *J. Mark. Res.*, 23: 11-24.
- Pavlou PA (2002a). A theory of Planned Behaviour Perspective to the consumer adoption of electronic commerce. *MIS Q.*, 1-51.
- Pavlou PA (2002b). What drives electronic commerce? A Theory of Planned Behavior perspective. *Proc. Acad. Manage. OCIS*, pp. 1-6.
- Pavlou PA, Fygenson M (2006). Understanding and predicting electronic commerce adoption: An extension of the Theory of Planned Behavior. *MIS Q.*, 30(1): 115-144.
- Ranganathan C, Ganapathy S (2002). Key dimensions of B2C web sites. *Inf. Manage.*, 39: 457-465.
- Russell JA (1979). Affective space is bipolar. *J. Person. Soc. Psychol.*, 37: 345-356.
- Sánchez MJ, Roldán JL (2004). Web acceptance and usage model: A comparison between goal-directed and experiential web users. *Int. Res. Elect. Netw. Appl. Pol.*, 15(1): 21-48.
- Sands S, Oppewal H, Beverland M (2008). The influence of in-store experiential events on shopping value perceptions and shopping behavior. *Adv. Consum. Res.*, 35: 298-303.
- Sanzo M, Santos M, Vázquez R, Álvarez I (2003). The effect of market orientation on buyer-seller relationship satisfaction. *Ind. Mark. Manage.*, 32(4): 327-345.
- Schlosser A (2003). Computers as situational cues: Implications for consumers' product cognitions and attitudes. *J. Consum. Psychol.*, 13: 103-112.
- Schneiderman B (1998). *Designing the user interface.* Addison-Wesley, Reading, MA.
- Segars AH, Grover V (1993). Re-examining perceived ease of use and usefulness: A confirmatory factor analysis. *MIS Q.*, 17(4): 517-525.
- Selin SW, Howard DR, Udd E, Cable TT (1998). An analysis of consumer loyalty to municipal recreation programs. *Leis. Sci.*, 10: 217-223.
- Shankar V, Smith A, Rangaswamy A (2003). Customer satisfaction and loyalty in online and offline environments. *Int. J. Res. Mark.*, 20: 153-175.
- Sherman E, Mathur A, Smith RB (1997). Store environment and consumer purchase behaviour: Mediating role of consumer emotions. *Psychol. Mark.*, 14(4): 371-378.
- Sherry IF, McGrath MA, Levi SL (1993). The dark side of the gift. *J. Buss. Res.*, 28: 225-245.
- Shih Y, Fang K (2004). The use of a decomposed Theory of Planned Behavior to study Internet banking in Taiwan. *Int. Res. Elec. Network. Appl. Pol.*, 14(3): 213-223.
- Shin DH (2008). Applying the technology acceptance model and flow theory to Cyworld user behaviour. *Cyber. Psychol. Behav.*, 11(4): 12-20.
- Sultan F, Rohm AJ (2008). How to market to generation (mobile). *MIT Sloan Manage. Rev.* 49(4): 35-41.
- Szajna B (1996). Empirical evaluation of the revised technology acceptance model. *Manage. Sci.*, 42(1): 85-92.
- Taylor S (1994). Waiting for service: The relationship between delays and evaluations of service. *J. Mark.*, 58: 56-69.
- Taylor S, Todd PA (1995a). Understanding Information Technology usage: A test of competing models. *Inform. Syst. Res.*, 6(2): 144-176.
- Taylor S, Todd PA (1995b). Assessing IT usage: The role of prior experience. *MIS Q.* 19(4): 561-570.
- Thang D, Tan B (2002). Linking consumer perception to preference of retail stores: An empirical assessment of the multi-attributes of store image. *J. Retail. Cons. Serv.*, (In press).
- Titus PA, Everett PB (1995). The consumer retail search process: A conceptual model and research agenda. *J. Acad. Mark. Sci.*, 23(2): 106-119.
- Tom G, Lucey S (1995). Waiting time delays and customer satisfaction in supermarkets. *J. Serv. Mark.*, 9(5): 20-29.
- Tsao W-C, Chang H-R (2010). Exploring the impact of personality traits on online shopping behaviour. *Afr. J. Bus. Manage.*, 4(9): 1800-1812.
- Turley LW, Milliman RE (2000). Atmospheric effects on shopping behaviour: A review of the experimental evidence. *J. Bus. Res.*, 49: 193-211.
- Van Der Heijden H (2003). Factors influencing the usage of websites: The case of a generic portal in the Netherlands. *Inform. Manage.*, 40(6): 541-549.
- Vanhamme J (2000). The link between surprise and satisfaction: an exploratory research. *J. Mark. Manag.*, 16(6): 565-582.
- Venkatesh V, Davis FD (2000). A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Manage. Sci.*, 46(2): 186-204.
- Vieira VA (2010). Visual aesthetics in store environment and its moderating role on consumer intention. *J. Consum. Behav.*, 9(5): 364-380.
- Vijayasathya LR (2004). Predicting consumer intentions to use online shopping: The case for an augmented technology acceptance model. *Inform. Manage.*, 41(6): 747-762.
- Vrechopoulos AP (2002). An emerging store layout for internet grocery retailing. 3rd ECR Europe scientific competition, Barcelona, Spain.
- Wakefield K, Baker J (1998). Excitement at the mall: determinants and

- effects on shopping response. *J. Retail.*, 74(4): 515-539.
- Wang YJ, Hernández MD, Minor MS (2010). Web aesthetics effects on perceived online service quality and satisfaction in an e-tail environment: The moderating role of purchase task. *J. Bus. Res.*, 63(9/10): 935-942.
- Wansink B (1992). Listen to music: its impact on affect, perceived time passage, and applause. *Adv. Cons. Res.*, 19: 715-718.
- Weisman G (1981). Evaluating architectural legibility: Way finding in the built environment. *Environ. Behav.*, 13(2): 189-204.
- Willis T, Coovert D, Nelson C, Spector P, Rohrer D, Shimizu T (2008). An evaluation of the Technology Acceptance Model as a means of understanding online social networking behavior. Doctoral dissertation, United States.
- Yalch RF, Spangenberg ER (1990). Effects of store music on shopping behaviour. *J. Cons. Mark.*, 7: 55-63.
- Yoh E, Damhorst ML, Sapp S, Lacznac R (2003). Consumer adoption of the Internet: The case of apparel shopping. *Psychol. Mark.*, 20(12): 1095-1118.
- Zeithaml VA, Berry LL, Parasuraman A (1996). The behavioural consequences of service quality. *J. Mark.*, 60(2): 31-46.