Store atmosphere in web retailing

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Abstract

Purpose – The purpose of this study is to provide a conceptual framework for studying the effects of online store atmosphere on consumer behaviour and a compilation of empirical studies from the time when research on web atmospherics emerged in the literature in 1999 until today.

Design/methodology/approach – A desk research approach is followed in order to concentrate empirical research on the effects of online store atmosphere on consumer behaviour from top academic journals and conference proceedings through an interdisciplinary research approach (i.e. marketing and information systems literature).

Findings – Extant research is concentrated and presented in a structured way. Online store atmosphere influences various aspects of consumer behaviour online. However, there are many open research issues on the effects of online store atmosphere on consumer behaviour.

Originality/value – The present study develops a parsimonious conceptual framework for studying the effects of online store atmosphere, summarises the knowledge on online store atmosphere in a structured and systematic manner, and identifies gaps and opportunities for advancing established knowledge. No single comprehensive collection of empirical research progress on online store atmosphere exists. The paper constitutes a valuable reference of compact information and future research suggestions for both academics and practitioners.

Keywords Electronic commerce, Retailing, Worldwide web, Consumer behaviour

Paper type Conceptual paper

Introduction

Atmospherics in the conventional store attracts a lot of interest from academics who examine the impact of atmospheric cues on consumer behaviour (Gardner and Siomkos, 1986; Turley and Milliman, 2000). The transition from brick-and-mortar retailing to click-and-mortar environments raises considerations about the dynamics of this new business approach. Just like retailers provide important information through atmospherics in conventional stores, online retailers also provide an atmosphere via their web site, which can affect shoppers’ image of and experience with the online store (Eroglu et al., 2000). Web atmospherics is “the conscious designing of web environments to create positive effects in users in order to increase favourable consumer responses” (Dailey, 2004, p. 796). Although online atmospherics research has only been in existence for nine years, there is empirical evidence of the impact of online atmosphere on various aspects of consumer behaviour. The goal of the present study is to propose a conceptual framework for studying online atmospheric effects on consumer behaviour; to accumulate, compose and present in a compact, structured and solid way the existing literature on online store atmosphere; and to identify research gaps and future research avenues.

Conceptual development

The development of an online cue typology is a first step toward understanding the nature and implications of this new retailing format. In the conventional store
environment theory, Lewison (1994) developed a theoretical framework that supports that the retail store environment consists of three basic components:

1. store image;
2. store atmospherics; and
3. store theatrics (Figure 1).

However, the classifications of the traditional store’s atmospheric qualities do not entirely apply to the online environment (Eroglu et al., 2000).

Based on Lewison’s (1994) framework, Vrechopoulos et al’s (2004) adapted the conventional retail environment components to the corresponding determinants of the virtual retail environment. Specifically, they introduced the Virtual Component Presentation Framework (VCPF), which consists of three factors:

1. virtual layout and design;
2. virtual atmospherics; and
3. virtual theatrics.

In the current study, the Online Store Environment Framework (OSEF) is introduced, aiming at providing a comprehensive typology of the online store interface (Figure 2). It is proposed that the online store environment consists of four components:

1. virtual layout and design;
2. virtual atmospherics;

![Figure 1. The conventional retail store environment](#)

![Figure 2. The Online Store Environment Framework (OSEF)](##)
That is, Vrechopoulos et al.’s (2004) framework is extended by adding the virtual social presence component, since although the physical presence of and interaction with other shoppers is not directly applicable online, it is indirectly indicated through the web counter and visitors’ comments (Eroglu et al., 2001). Thus, the social presence component consists of the web counter, the comments from visitors and crowding.

Based on the principles of environmental psychology, the S-O-R paradigm (Mehrabian and Russell, 1974) suggests that consumers’ internal states mediate the relationship between the environmental stimulus and individual’s responses. To that end, Mummalaneni (2005) proposes the S-O-R framework as a viable model for the investigation of online consumer behaviour. Specifically, the stimulus in the online context refers to the qualities of the online store environment. The organism part of the S-O-R model embodies consumers’ affective and cognitive intermediary states. The behavioural outcomes can be classified as either approach or avoidance behaviours. Approach refers to those positive actions that bring the consumer “closer” to the online store, as opposed to avoidance. On the other hand, an online store that results in negative internal states will “create a distance” between the online consumer and the online interface, which will be reflected by a negative shopping outcome. Thus, we propose:

**P1.** The online store environment influences shoppers’ internal states of affect and cognition, which then affect their shopping behaviour (approach or avoidance).

**P2.** Consumers’ internal states (affect and cognition) mediate the relationship between the perceived online store environment and their shopping outcomes.

In the proposed model (Figure 3) we posit that two individual characteristics moderate the relationship between the stimulus and the organism. The impact of the online store atmosphere on consumers’ internal states is moderated by the degree of consumers’ responsiveness to the online environment (i.e. consumers’ tendency to behave based on the store’s environment qualities) (Eroglu et al., 2003) and by their navigation strategy (i.e. goal attainment orientation, search or experiential orientation). Thus, we propose:

**Figure 3.** Conceptual model of consumers’ responses to the online store environment.
P3. Consumer navigation strategy and atmospheric responsiveness, moderate the relationship between the perceived online store environment and online consumers’ internal states.

Empirical research findings on online store atmosphere
Applying the conceptual framework, a desk research approach was followed towards recording the available empirical research findings on online store atmosphere. Specifically, a summary of 43 published empirical studies measuring the influence of online atmosphere and design factors on various aspects of consumer online behaviour is presented in this section. Table I refers to research published between 1999 and 2008. Discussion is structured based on the four components of the online store environment (Figure 2). In spite of the diversity in methodologies, the majority of these studies found some type of statistically significant relationship between the online atmosphere and consumer behaviour.

Virtual layout and design
The layout of the online store defines, to a large extent, consumers’ navigation within the store. Vrechopoulos et al. (2004) found that consumers perceive the freeform layout as significantly more useful in finding their shopping list products within the online store. The grid layout is significantly easier to use than the freeform and the racetrack layout, while the freeform layout is, by a small margin, more entertaining (Vrechopoulos et al., 2004). Finally, they report that the racetrack and the freeform layouts engage subjects for longer. Similarly, a tree structure online store layout, compared to a tunnel structured layout, is perceived to be easier to use and stimulates more positive consumer responses (Griffith, 2005).

Virtual atmospherics
Colour is an atmospheric element that is ubiquitous on web sites. Colour research attracts a lot of attention, as it has many alternative applications online. The influence of the web site’s colour on shoppers’ responses is quite steady (Wu and Yuan, 2003). Along these lines Gorn et al. (2004) found that for each dimension (i.e. hue, value, and chroma), colours that induce more relaxed feeling states (i.e. cool colours) lead to greater perceived quickness of the download. Colour also affects users’ evaluations of the web site, their likelihood of recommending the web site to others (Gorn et al., 2004) and consumers’ evaluation of the store personality (Clark et al., 2004). Similarly, when an expensive item is featured on a cool background colour, respondents indicate a higher likelihood of purchase (Biers and Richards, 2005). Additionally, highlighting and text display colour combinations affect visual preference and reading performance (Wu and Yuan, 2003). Despite the numerous studies conducted on the effects of music and scent in the conventional store, there are no published empirical studies that investigate their impact on consumers’ responses online.

Virtual theatrics
E-tailers are enabled to make their store look like a “theatre” through the use of images, graphics, animation and icons. Complexity refers to the richness of elements in a setting (Rosen and Purinton, 2004) and is often operationalised with the use of images, graphics and animation. Simpler webpage backgrounds are in general more effective
and appealing than more complex ones (Stevenson et al., 2000). To that end, Martin et al. (2005) find that web sites of medium complexity are evaluated more favourably than those of low or high complexity. Bruner and Kumar (2000) do not support though the direct effect of webpage complexity on consumers’ responses, while Lee and Benbasat (2003) claim that motion on a dynamic web interface demands greater user attention than a static web interface.

New media can incorporate levels of vividness and interactivity which traditional media cannot. Interactivity is the extent to which users can participate in modifying the form and content of a mediated environment in real time (Steuer, 1992, p. 84) and vividness is the representational richness of a mediated environment (Steuer, 1992, p. 81). More vivid web sites provide consumers with more of the information available through direct contact with the product (Fiore et al., 2005) and result in more positive attitudes toward the web site than less vivid ones (Coyle and Thorson, 2001). Mazursky and Vinitzky (2005) report that the duration of total search and brand examination is longer in a 3D interface than in the 2D interface. The 3D represents a highly vivid interface, while a 2D is a highly interactive interface. Along these lines, Fortin and Dholakia (2005) state that enhanced vividness of the message by means of colours, graphics, and animation is more likely to generate a favourable impact than comparable levels of interactivity.

Virtual social presence

The effects of virtual social presence on consumer responses online are not well documented in the literature until today. E-tailers use the web counter in order to communicate consumers’ preference to their store, but no specific findings support its effect on online consumer behaviour. Clark et al. (2004) found no effect of the presence of a persona online on the perceived store personality.

Research implications and future research issues

Nowadays, retailers spend a lot of money in order to create a pleasant store atmosphere that will contribute to positive shopping outcomes. Shopping nowadays is no more the synonym of the mere purchasing of products. Consumers are oriented toward the total product (Kotler, 1973-1974) and that includes, among other things, the place where the product is purchased or consumed. The shopping experience has to be transferred online too. Online shoppers are also seeking for the total product. Within the restricted computer interface the e-tailer should convey the feeling of being in a real store. In sum, one could infer from the accumulated evidence presented that the effective manipulation of the layout, atmospherics and theatrics is a strategic marketing tool that can contribute to the effectiveness and differentiation by determining consumers’ internal states and their overall responses. The use of colour, layout, vividness, interactivity, animation, graphics and other atmospheric stimuli should not be coincidental, but the result of systematic and conscious design of online stores. E-tailers can entice consumers to visit their store, shape their attitudes towards the store (Childers et al., 2001; Coyle and Thorson, 2001; Fiore et al., 2005), enhance their satisfaction (Eroglu et al., 2003; McKinney, 2004; De Wulf et al., 2006; Zviran et al., 2006), strengthen their purchase intention (Liang and Lai, 2002; Van der Heijden and Verhagen, 2004; Richard, 2005) or urge them to recommend the store to others (Gorn et al., 2004). Table I may serve as a reference guide for researchers and practitioners.
Citation | Design | Sample | Findings |
---|---|---|---|
Lohse and Spiller (1999) | Survey | 28 online retail stores | They find no effect of store presentation variables, such as image size, background patterns or the number of buttons on the storefront. |
Eroglu et al. (2000) | Survey and laboratory experiment | 166 students | A cue typology is empirically validated. High task-relevant cues are rated equally helpful by respondents high and low in atmospheric responsiveness (AR). Low task-relevant cues are rated as being more helpful for respondents in high AR. |
Fink and Laupase (2000) | Laboratory experiment | 60 students | Differences between Australians' and Malaysians' perceptions about the design characteristics are related to certain web sites. |
Stevenson et al. (2000) | Laboratory experiment | 90 students | Simpler webpage backgrounds are more effective than more complex ones. |
Bruner and Kumar (2000) | Laboratory experiment | 95 respondents | Increased webpage complexity leads to the pages being perceived as more interesting. Interestingness has a positive effect on consumers' attitudes toward the webpage. |
Liu and Arnett (2000) | Online survey | 119 webmasters-respondents | They identify four predicting factors of web site success (i.e., information and service quality, system use, playfulness and system design quality). |
Szymanski and Hise (2000) | Online survey | 1,007 shoppers | Convenience, site design and financial security are the dominant factors that influence e-satisfaction. |
Childers et al. (2001) | Laboratory experiment | 274 students | The greater the enjoyment of the interactive media, the more positive the attitude toward the media. |
Coyle and Thorson (2001) | Laboratory experiment | 266 shoppers | Increase in interactivity and vividness is associated with increased feelings of telepresence. Increase in vividness is associated with more positive and more enduring attitudes toward the web site. |
Hopkins and Alford (2001) | Field survey | 568 students | The e-tailer image construct is a six-dimensional construct represented by three affective dimensions (i.e., atmosphere, convenience, and self/site image congruence) and three functional dimensions (i.e., price, merchandise, and service). |

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<th>Citation</th>
<th>Design</th>
<th>Sample</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Burke (2002)</td>
<td>Online national survey</td>
<td>2,120 online consumers</td>
<td>New technologies can enhance the shopping experience, but applications must be tailored to the unique requirements of consumer segments and product categories</td>
</tr>
<tr>
<td>Dailey (2002)</td>
<td>2 x 2 x 2 lab experiment</td>
<td>160 subjects</td>
<td>Web sites with more restrictive navigational cues result in increased attractiveness for navigational control, lower web site attitudes, more negative emotions and increased intentions for avoidance when compared with less restrictive web sites</td>
</tr>
<tr>
<td>Liang and Lai (2002)</td>
<td>Experiment</td>
<td>30 students</td>
<td>Consumers are more likely to shop and return to well-designed web sites. Media richness factors are the least important</td>
</tr>
<tr>
<td>Menon and Kahn (2002)</td>
<td>Laboratory experiment</td>
<td>64 students</td>
<td>Subjects in the high pleasantness conditions are significantly more likely to visit more product categories, stores and web sites than were subjects in the neutral pleasantness conditions. Subjects in the high pleasantness conditions visit significantly more stimulating categories and promotional sites than do subjects in the neutral pleasantness conditions. Subjects in the low stimulation conditions search more product categories, stores and web sites than subjects in the high stimulation conditions</td>
</tr>
<tr>
<td>Ranganathan and Ganapathy (2002)</td>
<td>Survey</td>
<td>214 online shoppers</td>
<td>Information content, design, security and privacy are the four key dimensions that have an impact on online purchase intention</td>
</tr>
<tr>
<td>Eroglu et al. (2003)</td>
<td>Laboratory experiment</td>
<td>328 respondents</td>
<td>The perceived online atmospheric cues influence shoppers' pleasure, which, in turn, influences attitude, which then affects shoppers' level of satisfaction and approach/avoidance behaviour</td>
</tr>
<tr>
<td>Huang (2003)</td>
<td>Experiment</td>
<td>115 web users; 218 observations</td>
<td>Consistent negative impact of information load on pleasure and dominance is found</td>
</tr>
<tr>
<td>Citation</td>
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<td>Kim et al. (2003)</td>
<td>Experiments</td>
<td>418 students, 36 designers, 515</td>
<td>Several design factors are closely related to the evocation of specific aesthetic responses during interaction with homepages.</td>
</tr>
<tr>
<td>Lee and Benbasat (2003)</td>
<td>Laboratory</td>
<td>96 students</td>
<td>Fidelity and motion of images in a web interface are instrumental in keeping customers for longer and may lead to an eventual purchase.</td>
</tr>
<tr>
<td>Wu and Yuan (2003)</td>
<td>Laboratory</td>
<td>136 students</td>
<td>The type of tabular format, the information display position, highlighting conditions, the luminance, the chroma and the hue combination of the text foreground and background all affect the reading performance.</td>
</tr>
<tr>
<td>Clark et al. (2004)</td>
<td>Laboratory</td>
<td>237 students</td>
<td>A web site with cool colours will be perceived as more pleasant, more enthusiastic, more solid and more sophisticated compared with a web site using warm colours.</td>
</tr>
<tr>
<td>Gorn et al. (2004)</td>
<td>Four laboratory</td>
<td>49 students, 64 students, 120</td>
<td>For each dimension of colour (i.e. hue, value and chroma) colours that induce more relaxed feeling states lead to greater perceived quickness. Feelings of relaxation have direct effects on site attitudes.</td>
</tr>
<tr>
<td>Hu et al. (2004)</td>
<td>Laboratory</td>
<td>226 students</td>
<td>Marketers can trade off different design options to create an optimal visual design. Most design factors elicited the same impressions in Japanese, Chinese and UK respondents.</td>
</tr>
<tr>
<td>McKinney (2004)</td>
<td>Online survey</td>
<td>370 consumers</td>
<td>Some atmospheric variables (e.g. graphics and photos, special offers and product description) contribute to satisfaction for all consumer segments, while other atmospheric variables influence satisfaction for specific shopping segments.</td>
</tr>
<tr>
<td>Rosen and Purinton (2004)</td>
<td>Laboratory</td>
<td>211 students</td>
<td>Web sites scoring highly on coherence, complexity and legibility result in greater overall impression and probability of revisit.</td>
</tr>
<tr>
<td>Van der Heijden and Verhagen (2004)</td>
<td>Laboratory</td>
<td>312 students</td>
<td>The store’s enjoyment, trustworthiness, settlement performance and usefulness all have an effect on consumers’ attitude toward online purchases.</td>
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<tbody>
<tr>
<td>Vrechopoulos et al. (2004)</td>
<td>Laboratory experiment</td>
<td>120 real customers</td>
<td>The grid layout is perceived as being more effective for navigating a virtual store, compared with the freeform and the racetrack layout. Results suggest that two web-specific attributes (i.e. the level of interactivity and the amount of information) can predict consumers' e-satisfaction.</td>
</tr>
<tr>
<td>Ballantine (2005)</td>
<td>Online experiment</td>
<td>360 web users</td>
<td>Gender influences the way participants perceive the products’ attributes when exposed to different background colours. Consumers’ flow, trust and attitude towards the site were not affected by the web site’s look and feel.</td>
</tr>
<tr>
<td>Biers and Richards (2005)</td>
<td>Laboratory experiment</td>
<td>213 students</td>
<td>Image interactivity predicts emotional arousal and pleasure, attitude toward the online store and willingness to purchase from the online store. Results indicate that interactivity and vividness directly affect social presence and, indirectly, involvement. Participants in the tree structured online store layout have a greater proportion of positive inferential thoughts, accurately recall a greater number of products and brand names, have greater purchase intentions, a more positive attitude toward the retailer and perceive the site to be easier to use than participants in the tunnel structured online store layout.</td>
</tr>
<tr>
<td>Chen and Dibb (2005)</td>
<td>Online survey</td>
<td>459 students</td>
<td>The grid layout is perceived as being more effective for navigating a virtual store, compared with the freeform and the racetrack layout. Results suggest that two web-specific attributes (i.e. the level of interactivity and the amount of information) can predict consumers' e-satisfaction.</td>
</tr>
<tr>
<td>Fiore et al. (2005)</td>
<td>Laboratory experiment</td>
<td>103 students</td>
<td>More favourable brand attitudes, web site attitudes and purchase intentions emerge under medium web site complexity, compared with high or low complexity. High (low) sensation seekers prefer a web site with high (low) visual complexity and low (high) verbal complexity. High (low) need-for-cognition subjects exhibit more favourable attitudes toward a web site that combined low (high) visual complexity with high (low) verbal complexity.</td>
</tr>
<tr>
<td>Martin et al. (2005)</td>
<td>Laboratory experiment</td>
<td>117 students</td>
<td>More favourable brand attitudes, web site attitudes and purchase intentions emerge under medium web site complexity, compared with high or low complexity. High (low) sensation seekers prefer a web site with high (low) visual complexity and low (high) verbal complexity. High (low) need-for-cognition subjects exhibit more favourable attitudes toward a web site that combined low (high) visual complexity with high (low) verbal complexity.</td>
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<tr>
<td>Mazursky and Vinitzky (2005)</td>
<td>Laboratory experiment</td>
<td>114 students</td>
<td>Participants exposed to a 3D interface spent more time searching the web site. Participants exposed to a 2D interface examined more brands</td>
</tr>
<tr>
<td>Mumm alaneni (2005)</td>
<td>Experiment</td>
<td>130 students</td>
<td>The online store ambience has a positive effect on consumers’ pleasure, arousal, satisfaction, expressed intention of loyalty and number of items purchased</td>
</tr>
<tr>
<td>Richard (2005)</td>
<td>Online survey</td>
<td>Web surfers</td>
<td>Entertainment is positively related to site attitudes, site involvement, exploratory behaviour and purchase intentions</td>
</tr>
<tr>
<td>Yoo and Kim (2005)</td>
<td>Experiment</td>
<td>195 students</td>
<td>Subjects report negatively valenced thoughts and unpleasant feelings when exposed to high-animation conditions</td>
</tr>
<tr>
<td>De Wulf et al. (2006)</td>
<td>Online survey</td>
<td>209 subjects</td>
<td>Web site organisation, content and technology are all positively related to pleasure and satisfaction</td>
</tr>
<tr>
<td>Ethier et al. (2006)</td>
<td>Field survey</td>
<td>215 students</td>
<td>The more positive the evaluation of the online shopping experience, the higher the intensity of the emotions of liking, joy and pride</td>
</tr>
<tr>
<td>Tractinsky et al. (2006)</td>
<td>Two experiments</td>
<td>40 (first experiment) and 53 (second experiment) students</td>
<td>Positive immediate impressions were associated with high levels of aesthetic dimensions (classical and expressive). Low attractiveness is mainly correlated with very low evaluations of the expressive aesthetics dimension</td>
</tr>
<tr>
<td>Zviran et al. (2006)</td>
<td>Laboratory experiment</td>
<td>359 students</td>
<td>Web sites adhering to user-based design principles lead to greater satisfaction</td>
</tr>
<tr>
<td>Davis et al. (2008)</td>
<td>Laboratory experiment</td>
<td>359 students</td>
<td>Chinese consumers find online cues more helpful in completing a shopping task and experience lower levels of pleasure and arousal, compared with US consumers</td>
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Table I. Store atmosphere in web retailing
who need a comprehensive reflection of the conceptual but mainly the empirical insights on online store atmospherics.

This paper is not oriented toward presenting the online store atmosphere as a panacea of e-tailing. Overusing or misusing online store atmosphere may and can result in negative and totally undesirable effects. At the same time there are open research issues that will strengthen the contention that “online store atmosphere does indeed make a difference” (Eroglu et al., 2003, p. 148). In the case of click-and-mortar retailers, an interesting research path would be to examine how the atmosphere of the conventional store can influence consumers’ perception of the atmosphere of the online store. Congruency of the brand and the online atmosphere and its effect should also be examined. Another future research issue concerns the effects of congruency between the four components of the online store environments as described in Figure 2. Two variables – music and crowding – that have attracted a lot of research interest in the traditional store are overlooked in studies of online atmospherics. Future studies may examine the effects of online crowding or the presence of other customers (that can be indicated through a web counter) on consumer satisfaction with the e-tailer. According to Eroglu et al. (2003), confidence in the retailer could also be a relevant outcome of effective manipulation of the online store atmosphere. The link between approach behaviour toward the online store and store loyalty should also be investigated.

Technological capabilities offer to marketers the option of web site customization. This option applies for offering to each consumer a customized online atmosphere that fulfils his or her needs. The research question concerns the extent to which the consumer should have control over the customization options and to which extent the marketer should allow this customisation. The customisation and the manipulation of online store atmosphere is an easy task for e-marketers. The criteria and the guidelines (e.g. consumers’ navigation strategy, consumers’ atmospheric responsiveness, demographics, product category, etc.) that e-marketers will use in order to manipulate the online store atmosphere constitutes a constant challenge and existing knowledge as well as future research constitute fundamental contributors toward this direction.

References


**Further reading**


**About the authors**

Emmanouela E. Manganari obtained her PhD from Athens University of Economics and Business, and holds a MSc in Marketing Management from Aston Business School (UK). Her current research interests are in the areas atmospherics in e-tailing and retailing, consumer behaviour and strategic marketing planning. Emmanouela Manganari is the corresponding author and can be contacted at: eem@aueb.gr

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