Gender Differences in the Interpretation of Web Atmospherics: A Selectivity Hypothesis Approach

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This paper sets out to explore the role of gender as a moderator of the relationship between web atmospheric cues and virtual visitor's attitudes. In a laboratory experiment, the web atmospherics of a museum website –conceived as high and low task relevant cues- are manipulated so as to assess their impact on attitude towards the website and attitude towards the brand. The findings indicate that low task relevant cues are associated not only with higher attitude towards the website but with more positive evaluations of the brand as well. Gender has a moderating effect on both relationships of interest: In the absence of low task relevant cues, males develop less favourable attitudes toward the site and the brand, while females' attitude remains consistent across both experimental conditions. The findings are interpreted from a Selectivity Hypothesis viewpoint, which attributes gender differences in cognitive evaluations, to differences in information processing style. The study underscores the value of web atmospherics for service branding, elucidating the benefits for webpage design. It also supports the relevance of the Selectivity Model in the internet context and highlights its significance in the sphere of online attitude development.

Keywords: Selectivity hypothesis; web atmospherics; gender processing; virtual visitors' attitude

Introduction

The rapid development of virtual contexts for either commercial or communication purposes has motivated practitioners to attentively develop and maintain their online presence. Towards this end, web atmospheric elements have been excessively manipulated as a means to create an effective web design, capable of satisfying the organisation's marketing objectives, while at the same time forming a favourable impression and attracting surfers interest (Szymanski and Hise 2000; Wolfinbarger and Gilly 2003; Wu, Cheng and Yen 2008; Ganesh et al. 2010).

Web atmospherics are defined as "the conscious designing of web environments to create positive affect and/or cognitions in surfers in order to develop positive consumer responses" (Dailey 2004, 796). According to Eroglu, Machleit and Davis (2001) web atmospherics cues could be classified into two categories with regard to the usefulness of information they provide for achieving the shopping goal. To illustrate, high task relevant cues, consist of "all the site descriptors that appear on the screen which facilitate and enable the consumer's shopping goal attainment" and low task relevant cues include "site information that is relatively inconsequential to the completion of the shopping task" (Eroglu, Machleit and Davis 2001, 180). This typology has provided a validated and reliable tool for categorising web atmospheric cues, giving the impetus for further research endeavours in this field.

Literature on web atmospherics has documented their relationship with consumer pleasure and arousal, satisfaction, purchase intentions and urge to recommend the site to others (for a review see Manganari, Siomkos and Vrechopoulos 2009). However, the vast majority of these studies focused on retailer websites and therefore, evaluated the influence of web atmospherics on attitude toward the retailer (e.g. Eroglu,

Machleit and Davis 2003; Fiore, Jin and Kim 2005). As a consequence, virtual service settings remain relatively unexplored and the impact of web atmospherics on the attitude toward service brands is still not crystallized. Hence, an objective of the present study is to elucidate the influence of high and/ or low-task relevant atmospheric cues on attitude toward the website as well as attitude toward a service brand, and in particular, a museum brand.

Hopkins et al. (2009) suggested that an organization's website can be conceived as an "e-servicescape", being able to convey dimensions such as ambient conditions, spatial layout and functionality and signs, symbols and artifacts. Nowadays many museums as service providers, have begun shifting towards a more visitor-oriented approach (Kim 2009), trying to understand the influence of attributes of an "e-servicescape" on visual visitors' perception and behavior (Kravchyna and Hastings 2002; Wang et al. 2009). Although museums are service providers and bear some similarities with retail stores, in the case of museums "the service is the product" (Doering 1999, 25). Thus, a museum website provides a suitable context for the examination of the effects of web atmospheric cues on attitude toward a service brand. Prior studies (Bonn et al. 2007; Baumgarth 2009; Evans, Bridson and Rentschler 2012) have also focused on contemporary museums (such as the Guggenheim Museums, the MOMA Museum and the British Museum, to name but a few) that adopted a brand-oriented management approach, in order to offset the limited public funds and gain competitive advantage against their rivals. Several research papers have also analysed the concept of museum brand (Caldwell 2000; Camarero, Garrido and Vicente 2010, 2012; Liu, Liu and Lin 2013).

A significant gap in the web atmospherics literature stems from the fact that the

majority of research papers is directed on finding universal solutions and main effects (Joergensen and Blythe 2003). Nonetheless, the perception of web atmospherics is a function of individual perception (Porteous, 1996). This fact poses a challenge for companies that could maximize the appeal of their websites and gain a competitive advantage by assimilating customers' needs and wants into the design of their websites (Hammer 1995; Parasuraman, Zeithaml and Malhotra 2005; Sonmath, Mahmood and Joseph 2008). Effectiveness in web advertising and online communication requires personal relevance that rules out the production of homogeneous website blueprints. Rather than adopting personalized, one-to-one marketing strategies that tend to be expensive and difficult to implement, the identification of definable market segments facilitates the tailoring of web design so as to best reflect customers' common preferences (Smith and Whitlark 2001). Considering that gender is excessively used as a basis for segmentation for a significant proportion of products and services (Putrevu 2001), a thorough understanding of gender-specific evaluations and desires pertaining to web design is paramount. There is evidence to suggest that gender-sensitive websites and presentation may be beneficial (Kim, Lehto and Morrison 2007) and according to Tractinsky and Zmiri (2006), the proliferation of software skins indicates the demand for aesthetic personalization of IT applications. There seems to be a consensus on the existence of gender differences in the internet context (Simon and Peppas 2005): The role of gender has been studied with respect to web advertising perceptions (Schlosser, Shavitt and Kanfer 1999; Wolin and Korgaonkar 2003; McMahan, Hovland and McMillan 2009), use patterns (Venkatesh and Morris 2000; Weiser 2000; Okazaki 2007), purchase intentions (Chiu, Lin and Tang 2005), information search (Ford, Miller and Moss 2001; Hupfer and Detlor 2006), satisfaction with

online shopping (Rodgers and Harris 2003), online privacy concerns (Sheehan 1999) and risk perceptions (Garbarino and Strahilevitz 2004). Hence, the silence of the existing literature regarding the moderating role of gender in the interpretation of web atmospheric stimuli should no longer remain unaddressed. The present study, adds to the aforementioned scant literature by adopting a Selectivity Hypothesis approach (Meyers-Levy 1989b), that attributes variations in males' and females' perceptions to differences in information processing styles. From this angle, it attempts to investigate the moderating effects of gender in the relationship between web atmospherics and virtual visitors' attitudes toward the website and the museum brand.

Theoretical background

Museums as brands

Museums "are non-profit, permanent institutions in the service of society and its development, open to the public, which acquire, conserve, research, communicate and exhibit the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment" (ICOM 2007). In the last few decades the museum sector is undergoing considerable changes, because museums face an increasing pressure not only to compete in a global environment but also to become less dependent on public funding, thus becoming an interesting example for a wider range of organizations, including non-profit service institutions (Rentschler, Hede and White 2007; Evans, Bridson and Rentschler 2012). Contemporary museums, under the gaze of policy-makers and stakeholders are trying to understand the visitors' needs, preferences and motives in order to broaden their target audience (Kotler, Kotler and Kotler 2008).

Museum branding as a strategic marketing activity has evolved significantly over the last years in attempt to face these challenges by balancing the curatorial and commercial interests (Baumgarth 2009; Wallace 2006). In addition, several researchers have proposed relevant conceptualizations of the museum brand, a concept which has emerged out of consumer product branding and museum marketing (Rentschler and Hede 2013). For instance, museum brand equity has been a construct of great interest to scholars and several studies have advanced it as a conceptual or causal model (Caldwell 2000; Caldwell and Coshall 2002; Camarero, Garrido and Vicente 2010, 2012; Liu, Liu and Lin 2013). According to the above stream of literature, the core dimensions of museum brand equity include brand image, perceived quality, brand value, brand awareness, visitor satisfaction, brand associations, brand uniqueness, brand loyalty and other proprietary brand assets such as buildings, donors and curators. Furthermore, some researchers have focused on developing conceptual models of brand orientation in a museum context (Evans and Bridson 2006; Baumgarth 2009; Evans, Bridson and Rentschler 2012). Though these studies examined the construct of museum brand, they did not analyze the specific factors that could affect the attitude toward the museum brand such as the web atmosphere of the museum's online presence.

Web atmospherics

Introduced as early as 1973 by Kotler, the term "atmospherics" refers to "the conscious designing of space to create certain buyer effects, specifically, the designing of buying environments to produce specific emotional effects in the buyer that enhance purchase probability" (p. 50). Eroglu, Machleit and Davis (2001) argue that although the online atmosphere lacks the tactical and olfactory cues of the offline

store environment, the online retailer can manipulate the visual cues (and, to a limited extent, auditory cues) so as to produce affective reactions in site visitors, provide information about the retailer and influence shopper responses during the site visit. In this light, they suggested and thereafter empirically tested (2001; 2003), a highly influential typology that distinguishes online atmospherics between high task relevant and low task relevant cues. High task relevant cues intend to help the website visitor achieve a utilitarian motive such as a shopping goal (Babin, Darden and Griffin 1994). They may consist of descriptions of the merchandise, the price, the terms of sale, delivery and return policies, pictures of the merchandise and navigation aids. In websites designed for services, high task relevant cues include information related to the physical evidence of the service, opening hours, admission fees or costs, facilities, employees and any other information that may help the visitor to evaluate the particular service offering. Low task relevant cues include colours, borders and background patterns, typestyles and fonts, animation, music, entertainment, pictures other than the merchandise and any other element that has the potential to evoke a pleasurable and entertaining experience.

Attitude toward the site

The relevant literature associates online atmospherics and "attitude towards the site" (Childers et al. 2001; Coyle and Thorson 2001; Chen, Clifford and Wells 2002). Attitude toward the site is considered a useful variable pertaining to website evaluations and has a positive impact on attitude towards the advertisement, brand attitude and purchase intentions (Stevenson, Bruner and Kumar 2000; Kim, Kim and Lennon 2009). Prior studies have reported the importance of entertainment with respect to website evaluations and attitude toward the site (Ducoffe 1996; McMillan,

Hwang and Lee 2003; Richard 2005, Richard, Chebat and Putrevu 2010). Particularly, Childers et al. (2001) argued that "the more immersive, hedonic aspects of the new media" play an equal role along the instrumental aspects as predictors of online attitude. Visual attractiveness was acknowledged as a primary indicator of overall impression and website preference (Schenkman and Jönsson 2000). Indeed, according to Marty (2007) informational content of museum websites are necessary but not sufficient to engage online users. On the other hand, recreational and visual cues keep the interest of users for longer time, engaging them in entertaining activities. In addition, significant changes in attitude were observed when subjects were exposed to versions of a website that only varied in low task relevant cues (Mandel and Johnson 2002; Eroglu, Machleit and Davis 2003). Consequently, it can be hypothesized that:

H1: The presence of low task relevant atmospheric cues will positively affect attitude toward the website.

Attitude toward the brand

Wang, Minor and Wei (2011) argued that consumers' cognitive, affective and connotative outcomes can be significantly evoked by web aesthetic elements. The website might create a link between the consumer interaction and the brand, likely better than traditional advertising media can, and sustain a relationship and positive feeling with a brand (Dahlén, Rasch and Rosengren 2003). Several factors pertaining to low task relevant cues have been related to consumers' brand attitudes: Form, technical issues and content as well as object interactivity, were found to enhance the total brand experience (Schenkman and Jönsson 2000; Schlosser 2003; Lavie and Tractinsky 2004). In a services context in particular, due to intangibility, the online experience might be of significant importance in forming brand attitude: The virtual

servicescape represents the key artifact of the organisation to consumers (Rafaeli and Pratt 2005). For instance, in the visual museum context, Kang and Gretzel (2012), through a self report method, indicated that museum visitors perceived podcast web tours (a low task relevant cue) as a beneficial factor that enhances museum experiences. It seems reasonable then, that an influence will be yielded on brand attitude. Therefore, it can be hypothesised that a website displaying both high task relevant and low task relevant atmospheric stimuli is likely to reinforce attitude toward the museum as a brand than a website lacking low task relevant cues. Hence, the following hypothesis is advanced:

H2: The presence of low task relevant atmospheric cues will positively affect attitude toward the brand.

The Selectivity Hypothesis

Traditionally, certain personality traits have been ascribed to either men or women and empirical research has documented various differences. Holbrook (1986) has revealed that gender shows a significant tendency to moderate the effects of features on evaluative judgments and thereby can be a meaningful source of heterogeneity in preference structure. Differences in attitude formation and preference in the web context have also been attributed to gender: Males are found to prefer internet advertisements over traditional media advertisements due to their interactivity (O' Donohue, 1995). Preference tests in both web production aesthetics (Moss, Gunn and Heller, 2006; Moss, Gunn and Kubacki 2008) and web preference aesthetics (Moss and Gunn 2009) reveal that males and females tend to prefer the output of their own gender. Cyr and Bonanni (2005) also demonstrate gender differences in perceptions of website design and website satisfaction. In addition, empirical research documents

evidence consistent with an interpretation that accounts for variations between males and females information processing styles. In this light, Richard, Chebat and Putrevu (2010) indicated that males and females exhibit different patterns with respect to website exploratory behavior, website involvement and site attitude. Therefore, it is of great interest to look into gender differences in order to gain a thorough understanding of the effect of web atmospherics on attitude toward the site and the brand.

One of the most significant and salient contributions to the interpretation of gender differences is the Selectivity Hypothesis (Meyers-Levy 1989b; Meyers-Levy and Maheswaran 1991; Meyers-Levy and Sternthal 1991). According to this theory, the origin of gender perceptual differences lies in variations in brain organisation and functioning. More specifically, men are considered as "selective processors", as they are more likely to be driven by overall message themes and rely on efficiency-striving heuristics in spite of detailed message elaboration. Heuristic processing is conceived as a limited processing mode that demands much less cognitive effort and capacity than systematic processing. When processing heuristically, people focus on a subset of available information that enables them to use simple inferential rules, schemata, or cognitive heuristics to formulate their judgements and decisions (Chaiken, Liberman and Eagly 1989). Moreover, males' processing style relies heavily on the right hemisphere, indicating an excellence in nonverbal processing, visual activity and visual spatial processing (Meyers-Levy 1989a; 1989b).

On the contrary, the Selectivity Hypothesis regards women as "comprehensive" or "systematic processors". Systematic processing is defined as an analytic orientation on which perceivers access and scrutinise all informational input for its relevance and importance to the specific task, and integrate all useful information in forming their

judgements (Chaiken, Liberman and Eagly 1989). Therefore, females are more likely to engage in effortful, detailed elaboration of the message content and attempt to extensively elaborate on more message claims than men. Females show a greater dependence on the left hemisphere of their brain, that induces superiority preeminence in verbal processing.

Gender as a moderator in the relationship between online atmospherics and attitude toward the website

A significant number of studies that has examined the effects of gender differences on online behavior and in particular perception, preferences, attitudes and use patterns has adopted a Selectivity Model viewpoint. For instance, primary school boys like animations and colours more than girls and are more impatient when pages do not include pictures (Leong and Hawamdeh 1999). Males are found to enjoy browsing (Ford and Miller 1996). Their heuristic processing pattern as suggested by the Selectivity Model, may facilitate their efficient online information retrieval (Ford, Miller and Moss 2001) and their preference for straightforward information presented in a well-structured website (Richard, Chebat and Putrevu 2010). In general, men's processing style suggests that they might benefit from nonverbal cues (such as pictures, music etc.), which carry more diagnostic information than verbal cues (Putrevu 2001). As a result, a website that lacks such reinforcement by endorsing only high task relevant cues is expected to be schematically processed by male participants. On the contrary, the provision of such stimuli is likely to activate their visual proclivity, triggering more elaborate processing. According to the Elaboration Likelihood Model, attitude formed on the basis of high elaboration is likely to be stronger compared to attitude resulting from low elaboration (Petty, Cacioppo and Schumann 1983). Thus, the enhancement of the website with low task relevant cues is

assumed to stimulate elaborate processing, resulting in stronger male attitude.

On the other hand, primary school girls read more carefully online (Leong and Hawamdeh 1999). Women seem to perceive less emotional gratification from online shopping than men and report lower levels of trust, since they rely on details and intricacies that might very well affect how they feel about a particular website Rodgers and Harris 2003). Furthermore, their elaborate processing style may explain why they appear disappointed and disoriented by the internet (Ford and Miller 1996) and the reason they are associated with failure when assigned a particular task of information search (Ford, Miller and Moss 2001). In a similar vein, their processing approach seems to provoke a motivation to engage in more exploratory behavior and to generate greater involvement with the website content (Richard, Chebat and Putrevu, 2010). Viewed from a Selectivity Hypothesis outlook, it appears that womens' processing style is more integrated and verbal descriptions might stimulate deeper processing and superior memory (Putrevu 2001). Hence, the information-rich high task relevant cues, present in both conditions, are expected to kindle females' detailed elaboration processing style, and thus formulate consistent attitude across both conditions. Nonetheless, the reinforcement of non-verbal information is not likely to disadvantage the more flexible and symmetrical brain processes attributed to women (Putrevu 2004). Thus, the presence of low task relevant cues is not expected to evoke more favourable attitude toward the website. Hence, the following hypothesis is formulated:

H3: Gender will have a moderating effect on the relationship between online atmospherics and attitude toward the website such that:

a) Male attitude will be more positive in the presence of low task relevant cues rather than their absence.

b) Female attitude will be similar both in the presence and the absence of low task relevant cues.

Gender as a moderator in the relationship between online atmospherics and attitude toward the museum brand

The different processing patterns used by males and females are also likely to exert an influence on brand evaluation and attitude. Putrevu (2004) argues that men and women might attach varying levels of salience to product attributes and use advertised product information in different ways when rendering judgment. A recent study by Meyers-Levy and Zhu (2010) attests that consumers' processing proclivity may influence the meanings they use, affecting the way they process and devote resources to background stimuli like music and graphics: Females are apt to attend to more data during processing and attribute their product perceptions to more stimulus meanings compared to men, whose selective nature implies the sole use of one meaning.

Hence, gender differences in cognitive strategies and depth of information processing suggest that the very same web atmosphere may cause a divergence in men's and women's attitude toward the endorsed brand. In accordance with the Selectivity Model, men as selective processors won't be likely to elaborate on other information stimuli apart from the web atmosphere they are about to encounter in order to render judgements. In other words, the online environment will play the role of heuristics in brand attitude development. In this vein, males' selective processing will be considerably dependent on the web stimuli they will be exposed to. As they value visual reinforcement, in the scenario that combines both high and low task relevant cues, men might report higher attitude toward the brand. However, in the scenario displaying only high task relevant cues, their attitude might be less favourable.

Females, as comprehensive processors, base their responses on multiple pieces of data, assimilating all available information before rendering judgment (Meyers-Levy 1989b; Meyers-Levy and Sternthal 1991). Women show greater sensitivity to a variety of situation-specific cues in determining their evaluations (Lenney, Gold and Browning 1983). Consequently, the museum's web atmosphere is likely to partially affect brand attitude. Hence, it is reasonable not to expect a dramatic divergence in attitude toward the brand across the display of high task relevant versus both high and low task relevant cues. Even so, the informational character of the high task relevant cues (displayed in both conditions) may provide satisfactory stimuli to female elaborate processors for the evaluation of the Museum brand. As a result, the web atmosphere might trigger consistent responses, implying an invariable evaluation of the museum brand across both experimental conditions. Therefore, the following hypotheses are developed:

H4: Gender will have a moderating effect on the relationship between online atmospherics and attitude toward the brand, such that:

a) Male attitude will be more positive in the presence of low task relevant cues rather than their absence

b) Female attitude will be similar both in the presence and the absence of low task relevant cues.

Brand Familiarity and Involvement as Covariates

Product class involvement, purchase decision involvement and familiarity with the museum were used as covariates for the framework, since many prior studies have stressed the important role of product involvement (McMillan 1999; McMillan 2000; Koufaris 2002; Elliott and Speck 2005) and brand familiarity (Larouche, Kim and

Zhou 1996) in attitude toward the web site and the brand. The level of involvement impacts online users' motivation to process website information, their processing strategy as well as the focus of their attention (Balabanis and Reynolds, 2001). Particularly, when users have high involvement with a product class or a purchase decision they tend to be information seekers for the purpose of acquiring persuasive qualitative arguments about the product (central route processing) (Koufaris 2002). On the other hand, when they have low involvement with a product category or a purchase decision they use peripheral route processing that focuses on message environmental characteristics such as the presentation of the message and not on the message per se (Petty, Cacioppo and Schumann 1983; Shin and Kim 2008). This differential processing style can affect online shoppers' purchase intention (Xue and Zhou 2010) and induce more positive attitude towards the web site (Elliott and Speck 2005; Chen et al. 2009).

Brand familiarity is a continuous variable that reflects the number of brand-related experiences accumulated by online consumers (Ha and Perks 2005). According Marty (2007) higher levels of familiarity with a museum brand (developed after the visit) focus visitors' interest on online images and gallery tours and to a lesser extent on basic information (i.e. hours of operation or driving directions). On the other hand, low brand familiarity with a museum brand (before the visit) prompts website users to explore basic elements. It is obvious that both involvement and familiarity could adversely affect the manipulation of this experiment.

Hence, the present study assessed the interactive effects of low task relevant cues and gender on attitudes, adjusting simultaneously for differences in product class involvement, purchase decision involvement and familiarity with the brand

(Tabachnick and Fidell 2001). Figure 1 illustrates the conceptual framework of the study and schematically highlights the aforementioned research hypotheses.

PLEASE PLACE FIGURE 1 ABOUT HERE

Methodology

The Museum context and the Archaelogical Museum of Thessaloniki in particular, were employed as the basis for the field research. Founded in 1962, the Archaelogical Museum of Thessaloniki has developed a unique brand over the years, as one of the largest, more treasured and popular Archeological museums of the country that displays the legendary Vergina exhibits. The particular virtual servicescape was chosen for its purely informative and educational function that does not entail e-shopping opportunities. Consequently, common issues pertaining to online transactions such as merchandise information and financial security concerns are eliminated, leaving a fertile ground for the exploration of the relationship between environmental stimuli and consumer brand perceptions. In addition, it was important to select a service that would be targeted to both males and females in order to avoid variations in levels of involvement that could influence the findings of the research.

The Museum's website is a bridge to connect visitors' pre-visit and post-visit activities by learning more about the museum and its collections (Marty 2007). Planning a museum visit is cited as the primary motivation for museum website visitors in a number of studies (Bowen, Bennet and Johnson 1998; Chadwick and Boverie 1999; Goldman and Schaller 2004; Marty 2007). Furthermore, website museum visitors are particularly influenced by the quality of the information available online, the ability to navigate the website and its ease of use, usability and

accessibility (Marty 2007). According to Economou (2003), the visual stimuli that archaeological museum online visitors seem to appreciate above all, bear an informational character, such as graphs and photographs that explain how artifacts were created, used or recovered.

The websites

A laboratory experiment was designed based on the actual website of the Archeological Museum of Thessaloniki, Greece. The Museum's web atmospherics were manipulated by webpage designers so as to create two slightly modified site versions. Following the approach of other seminal studies in the field of online consumer behavior (e.g. Schlosser 2003; Fiore, Jin and Kim 2005) the use of a real webpage was preferred over the creation of fictitious one, as a means to improve the ecological validity of the study. The use of a real website as the canvas for the special versions also maintained the external validity of the study. Even in case participants had previously visited the Museum's website, they would have encountered a different web atmosphere.

Participants were exposed to two Greek versions of the website. The first version displayed both high task relevant and low task relevant cues while the second version displayed only high task relevant cues. A third version displaying only low task relevant cues was not considered appropriate for the study, since a museum website that does not display any information at all (high task relevant cues in the form of text) and presents only music, colours, animated graphics etc. would seem as non-realistic. The selection of the stimuli that would be manipulated followed the footsteps of previous studies that investigated the effects of high and low task relevant web atmospherics (Eroglu, Machleit and Davis 2003; Davis, Wang and Lindridge

2008; Ha and Lennon 2010). The aforementioned studies examine the impact of low and high task relevant cues as an aggregate category and do not focus on specific cues. In both scenarios of our study, the high task relevant cues were identical: The introduction page presented the title, as well as an exterior photograph of the Museum. The homepage displayed a picture of the Museum's interior and the site menu directed the visitor to "Permanent Exhibitions", "Temporary Exhibitions", "News and Events", "Educational Programmes", "Publications" and "Archive" sub-menus. An array of buttons enabled the user to access the "Contact Us", "Visitor Information", and "Sitemap" sections. The manipulation concerned the low-task relevant cues: The first version was enriched with music, displayed a light blue colour background and fonts (instead of white), presented a photograph on the main section of the homepage as well as some frames and background patterns and incorporated more vivid photos of the museum exterior and exhibitions. Finally, five animated graphics were used to replace static pictures on several sub menus of the webpage. On the contrary, the second version was designed on a white background with black fonts, displayed museum photos and text descriptions and contained no music or animation.

Measures

The questionnaire contained several attitude scales. More specifically attitude toward the site (Chen and Wells, 1999), attitude toward the brand, product class and purchase decision involvement, (Laurent and Kapferer 1985; Mittal 1995), familiarity with the museum and familiarity with the museum's website were recorded. Further, respondents were asked to report whether they had visited the museum and the museum website before and to also to indicate their gender information. A detailed

explanation of the measures used in the study is cited in the Appendix A. The average of the ratings for each scale was satisfactory, as the internal reliability, measured by Cronbach's Alpha, satisfied Nunnally's (1978) criterion of 0.7. Particularly, Cronbach's alpha coefficient of reliability was .87 for attitude toward the site, .81 for the attitude toward the brand, .94 for product class and .80 for purchase decision involvement. All scales were translated into Greek using the translation / back-translation technique. The questionnaire was pilot tested on an experiment with 14 undergraduate students.

As far as the manipulation check is concerned, the effectiveness of the high task and low task relevant cues manipulation was assessed, using items adapted from Aladwani and Palvia (2002) user-perceived web quality instrument. An explanation of the items is also cited in the Appendix B. The adaptation of Aladwani and Palvia's (2002) user-perceived web quality instrument in the Greek language exhibited good validity. Particularly, for the high task relevant cues subscale, Cronbach's alpha was found to be .90, while for the low task relevant cues subscale was slightly higher (Cronbach's alpha= .91).

Procedure and Sample

The experimental sessions took place in a campus computer laboratory. The personal computers used in the procedure had exactly the same technical characteristics, screen resolution and speakers, ensuring that all respondents would experience the website stimuli in identical conditions. Each participant was assigned individually to a personal computer, and received instructions to browse the particular version of the webpage for fifteen minutes. Four researchers, present during the experimental sessions, ensured participants' adherence to the instructions. At the completion of the

timeline, subjects were instructed to fill in a questionnaire. Research was undertaken on 215 (111 females) Greek, Caucasian individuals with a similar educational background between the ages of 22 and 55 (145 between 22-30, 44 between 30-40 and 31 over 40). A convenience sample of undergraduate and executive postgraduate students at Aristotle University of Thessaloniki was recruited for the study. The sample was heterogeneous in terms of age and professional status in order to portray a prototypical segment of museum visitors.

In order to eliminate bias and ensure homogeneity within groups, subjects were screened to ensure proficiency in internet use. Participants were randomly assigned to the groups. Half of them (51.2%) had visited the museum at least once, while only a small percentage (4.4%) had encountered the museum webpage before (Table 1). This small group of participants (4.4%) was eliminated from subsequent analyses to ensure matching between experimental and control groups.

PLEASE PLACE TABLE 1 ABOUT HERE

Experimental (n=108) and control groups (n=107) were similar in terms of gender ($X2=.230$, $df=1$, $p<.63$), prior visit to the museum ($X2=.594$, $df=1$, $p<.44$), prior visit to the museum's website ($X2=2.728$, $df=1$, $p<.10$) as well as level of familiarity with the museum ($t=.260$, $p<.80$) and the website ($t=.1.615$, $p<.11$) (Table 1). The experimental group was exposed to both low and high relevant cues, while the control group was exposed only to high task relevant cues.

Moreover, an additional analysis was performed to test whether gender has an effect on involvement and familiarity measures. Table 2 indicates that both male and female participants demonstrate similar levels of product class involvement ($t=.68$, $p<.50$), purchase decision involvement ($t=.46$, $p<.64$), familiarity with the museum ($t=.49$, $p<.63$) and familiarity with the website ($t=.22$, $p<.83$). In other words, there is

no difference between males and females regarding their involvement with museums and familiarity.

PLEASE PLACE TABLE 2 ABOUT HERE

Results & Discussion

Manipulation Checks

As expected, a t-test indicated no significant differences ($t=.17$, $p>.87$) in perceived amount of information between the two conditions, namely the high task relevant cues condition ($M=14.05$, $SD= 3.7$) and high and the low task relevant cues condition ($M=13.96$, $SD=3.6$). On the contrary, a significant main effect for presence or absence of low task relevant cues on perceived quality of web appearance was obtained ($t=3.30$, $p<.001$). Mean values for participants in the high and low task relevant condition were $M=18.55$ ($SD=4.7$), with corresponding values for participants in the high task relevant cues condition being $M=16.45$ ($SD=4.64$). The above manipulation checks indicated that the subjects in the high and low task relevant cues conditions perceived the website as more attractive, well organized and properly designed.

Hypothesis Testing

To test the four hypotheses of interest, a factorial multivariate analysis of covariance (MANCOVA) was conducted with low task relevant cues and gender as the independent variables and attitude toward the site along with attitude toward the brand as the dependent factors. MANCOVA was chosen as the appropriate statistical procedure for identifying the effects of the dichotomous independent variables on the continuous dependent variables (Tabachnick and Fidell 2001).

Covariates

The results indicate no effect of product class involvement on attitude toward the site ($F=1.64$, $p<.20$) and attitude toward the brand ($F=3.67$, $p<.06$). Similarly, purchase decision involvement has no effect on attitude toward the site ($F=0.01$, $p<.92$) and attitude toward the brand ($F=1.37$, $p<.24$) (Table 3). On the other hand, familiarity with the museum exerts a positive effect on attitude toward the brand ($F=4.50$, $p<.04$) but not on attitude toward the site ($F=.09$, $p<.77$) (Table 3).

PLEASE INSERT TABLE 3 ABOUT HERE

Main Effects

According to hypothesis 1, exposure to low task relevant atmospheric cues is associated with more positive attitude toward the site (high and low task $M=3.87$, $SD=.58$, high task $M=3.40$, $SD=.81$) (see Figure 2). Particularly, the MANCOVA showed a significant main effect of low task relevant cues on attitude toward the site ($F=27.94$, $p<.000$) (Table 3). Hence, hypothesis 1 is supported. The above finding is congruent with McMillan, Hwang and Lee (2003) who found that consumers with the greater perceptions of the site's entertainment value had more positive attitude toward websites, and Rowley (2002) who claims that images including both static and kinetic graphics can make a web page look more interesting. Furthermore, it aligns with relevant research reflecting the idea that the internet as a medium is not used for utilitarian purposes alone; rather, it increasingly serves consumers' hedonic motivations providing a blend of entertaining and recreational experiences (Childers et al. 2001; Ganesh et al. 2010). So, the present study extends earlier research by showing that low task relevant atmospheric cues should be regarded as an additional creative approach that could be used by web service providers to entertain virtual

visitors, improving, at the same time, their attitudes toward the website.

PLEASE PLACE FIGURE 2 ABOUT HERE

As hypothesis 2 predicted, participants formulated more positive attitude toward the brand when exposed to both low and high task relevant cues (M=3.79, SD=.77) than when exposed only to high task relevant cues (M=3.33, SD=.72) (see Figure 3). The MANCOVA also revealed a main effect of low task relevant cues on attitude toward the brand (F=20.81, p<.00) (Table 3), lending support to hypothesis 2. The aforementioned results are in accordance with Keller's (2009) view, which considers interactive marketing communications able to encourage brand attitude formation and decision making. Their potential to deliver image, sound and motion of all forms, - in that case reinforced by the low task relevant cues - facilitates the creation of substantial experiential and enduring feelings.

PLEASE PLACE FIGURE 3 ABOUT HERE

A significant main effect of participants' gender was found on attitude toward the site (F=9.88, p<.01) with females (M=3.77, SD=.62) reporting more positive attitude than males (M=3.48, SD=.83). Similarly, females expressed more positive attitude toward the brand (M=3.69, SD=.78) compared to males (M=3.42, SD=.86) a difference that is statistically significant (F=6.93, p<.01). Also, as expected, attitude toward the website is positively related to attitude toward the museum as a brand (F=119.89, p<.000).

Gender as Moderator

Hypotheses 3a and 3b posited that gender has a moderating effect on the relationship between low task relevant cues and attitude toward the site. Indeed, MANCOVA (F=12.92, p<.000) found strong evidence of moderation. Males were significantly more likely to formulate positive attitude toward the site when exposed to both low

and high task relevant cues (Mean=3.88, SD= .59) than when exposed only to high task relevant cues (Mean=3.06, SD=.84) (see Figure 2). Thus, hypothesis 3a is accepted. On the other hand, females hold similar attitude toward the website regardless of the presence or absence of low task relevant atmospheric cues (see Figure 2). Hence, hypothesis 3b is also supported.

This finding can be accommodated within the Selectivity framework that attests the activation of different processing styles by genders when exposed to visual, spatial or word oriented stimuli (Meyers-Levy 1989a). Further, it extends Meyers-Levy and Sternthal's (1991) study, which demonstrated that when both genders attend to and elaborate on message information, a similar impact is yielded on men's and women's judgments. More specifically, this study indicates that males' right hemisphere processing inclination appears to manifest a preference for visual stimuli, in this case provided by the enhancement of the web atmosphere with low task relevant cues. Thus, the provision of online stimuli such as colours, animation and interactivity seems to stimulate elaborate processing that evokes positive attitude, whereas the sole display of textual content instigates heuristic processing that ultimately generates lower attitude. On the contrary, females' greater reliance on the left hemispheral activity seems to trigger the effective and elaborate processing of the verbal content in both conditions, generating strong attitude.

Hypothesis 4a suggested that males develop significantly more positive attitude toward the brand in the presence of low task relevant cues. Indeed, MANCOVA revealed an interaction effect between low task relevant cues and gender in attitude toward the brand ($F=11.86$, $p<.001$). The form of this interaction supports both hypotheses 4a and 4b (mean for low task relevant cues =3.84, SD=.69, mean for high

task relevant cues=2.98, SD=.81). On the other hand, low and high task relevant cues produce similar levels of attitude toward the brand in the female group (see Figure 3), a finding that further supports hypothesis 4b.

The particular interaction effect can be interpreted from a Selectivity Hypothesis viewpoint as well. Males, as selective processors, appear to have heavily relied on stimuli they have just been exposed to during the experiment, and developed their evaluative judgments accordingly. In other words, displaying a source of available cues, the webpage might have served as heuristics in the process of brand attitude development. The presence of high task relevant cues alone led males to evaluate the Museum brand in a less favourable way, while the enrichment of the webpage with low task relevant cues enhanced their attitude toward the museum as a brand.

The aforementioned results expand Meyers-Levy (1988) and Meyers-Levy and Sternthal's (1991) studies, highlighting the value of the Selectivity Model for the interpretation of gender differences in the processing of web atmospherics. In particular, females, regarded as more attentive to a variety of information specific cues when rendering judgments, in the process of brand attitude formation seem to have considered other stimuli as well apart from the web atmosphere. These external cues could include information they have been exposed to previously (such as past experience, word of mouth, marketing communication claims) and seem to play a non-negligible role in the process of attitude formation. As a consequence, both female experimental groups reported consistent attitude toward the museum brand.

Conclusions and Managerial Implications

The findings of the study seem to converge with the pertinent literature attesting that trivial peripheral elements in communications, that may be used simply for their

entertainment or decorative value, can in fact exert potent influences, regardless of the level of resources subjects devote (Meyers-Levy and Zhu 2010; Yang, Zhang and Peracchio 2010).

Given the tremendous role of online communications in the contemporary marketplace, it seems critical that marketers and website designers should thoroughly understand user preferences in order to construct attractive websites that kindle their interest and accommodate their varying needs. The present study indicates that low task relevant cues may enhance attitude toward the website. In other words, the enrichment of a webpage with factors that augment its entertainment value positively influences surfers' attitude toward the site itself. Therefore, an effectual web design grows in significance and should receive adequate attention. As Vilnai-Yavetz and Rafaeli (2006) propose, the initial "first impression" effects of the physical servicescapes are of particular importance for the e-services context, as costs of transfer from one setting to another are much lower, not to mention easier and quicker.

Even though the internet has revolutionized the competitive landscape within which organizations operate, e-brand communications seem too often neglected (Ibeh, Luo and Dinnie 2005). Aiming to broaden the existing literature and assist organizations to effectively communicate their brand distinctiveness online, the research findings suggest that online atmospheric stimuli may profoundly shape brand attitude and can be viewed as a means toward the enhancement of brand evaluations. Particularly, low task relevant atmospheric cues appear to exert a positive effect on attitude toward the brand. These results highlight the significance of web atmospherics in virtual servicescapes (such as museums' websites) where the challenge to attract visitors

through a fine, aesthetic representation of the service brand's venue is paramount. In the absence of physical brand and consumer interaction, the selection of the stimuli displayed in the online environment should ideally reflect the brand's essence and uniqueness. The aforementioned implications are worthy of careful consideration in the museum sector, where online resources are regarded as a significant outlet and engagement facility (Peacock 2007). The rapid development of websites within only a few years by almost every major institution, as well as the majority of local or specific interest museums (Jones-Garmil 1997), is no coincidence and underlines the need to direct further attention on this matter.

The conceptual framework suggested in this study, supports the applicability of the Selectivity Hypothesis in the internet context and yields important insights concerning gender differences in attitude development. Although previous research has adopted a Selectivity Model standpoint to explain reported differences provoked by the online atmosphere (Richard, Chebat and Putrevu 2010), this is seemingly the first study to employ a Selectivity outlook regarding the relationship between web atmospheric stimuli and consumers' brand attitude.

Taking into consideration that gender is a common segmenting factor for a plentitude of services, the findings of this study may offer some guidance to e-servicescapes so as to target either men or women in a personalised manner. Indeed, the degree of customisation and personalisation is recently being applied in a growing number of museum technology applications. For instance, interactive applications are provided that offer personalised guidance, tailored to the visitor's own age and gender (Danks et al. 2007). Gender is a factor that critically impacts customisation by shaping the preferences and the environment of each user's interface. The suitability of content as

well as the presentation of the message relies on the acquisition of a comprehensive understanding of the particular needs and characteristics of the audiences (Kim, Lehto and Morrison 2007). Hence, the insights of this study could contribute to the growing trend to place the uniqueness of the visitor at the center of the museum experience, by informing the development of gender-sensitive websites and technology applications.

For instance, the Selectivity Hypothesis implies that men, as heuristic processors, would benefit from marketing communications stimuli that are simple and focus on a single theme. At the same time, verbal information should be complemented with nonverbal, visual stimuli (Putrevu 2001). Thus, websites targeted to men should be enriched with low task relevant cues such as music, pictures, graphs and animation that align with the nature of the verbal content. On the contrary, websites targeted to women should ideally incorporate both low task and high task relevant cues, placing a great emphasis on the richness and quality of the information displayed, that appeals to their detailed elaboration processing.

Limitations and Further Research

The generalizability of the research findings should be considered with caution due to the convenience sample used for the data collection. The use of student samples is prevalent in numerous research studies in the internet context (e.g. Stevenson, Bruner and Kumar 2000; Hupfer and Detlor 2006; McMahan, Hovland and McMillan 2009).

The conception of web atmospherics as high task relevant and low task relevant cues directed the experimental design of the study accordingly. Similar to the pertinent literature (Eroglu, Machleit and Davis 2003; Ha and Lennon 2010), low task relevant cues were manipulated as an entire category of stimuli. Further research could

illuminate the influence of single cues (i.e, colour, music) to the visitors' attitudes.

Moreover, the study was context specific. The collection of the data was conducted using a Museum website, as an example of a virtual servicescape. Taking into consideration that every service environment possesses a set of particular characteristics that may impact on individuals' perceptions and evaluations, future studies could attempt to investigate other service environments, so as to gauge attitudinal responses provoked by the online atmospheric stimuli of their websites.

Another limitation of the study stems from the dichotomous conceptualisation of gender. According to Bem (1981), the construct of gender is psychological and can reflect a surrogate for other psychological traits. In that sense, instead of being situated at bipolar extremes, men and women might stipulate various degrees of femininity and masculinity that reflect their gender identities and gender role attitude. Although the binary measurement of gender is in accordance with numerous marketing studies investigating gender differences, further research that could incorporate the psychological overtones of the construct would achieve a holistic outlook of the area. Moreover, according to recent studies (Salzberger et al, 2013) there is an inherent limitation in all gender related studies in the sense that researchers assume that the items mean roughly the same thing to all respondents within a particular population. They claim that respondent may interpret the items in different ways thus affecting measurement equivalence and comparability across groups. However, it is not within the scope of this study to identify the underlying reasons for the differences in item response patterns.

Finally, this study investigated gender differences in web atmospherics from an attitudinal point of view. Future research endeavours in museum websites could

examine the moderating role of gender with respect to website visitor's affective responses, such as the emotional states of pleasure, flow or enjoyment (Lin, Gregor and Ewing 2008).

Appendix A

The measures used in the study

Attitude toward the site (Chen and Wells 1999).

This website makes it easy for me to build a relationship with this company.

I would like to visit this website again in the future.

I am satisfied with the service provided by this website.

I feel comfortable in surfing this website.

I feel surfing this website is a good way for me to spend my time.

Compared with other websites, I would rate this one as: One of the worst/ one of the best

* The measurement was conducted by a 5-point Likert scale ranging from "Definitely disagree" to "Definitely agree"

Attitude toward the brand

In my opinion, the Archeological Museum of Thessaloniki is: Favourable/Unfavourable

My opinion of the Archeological Museum of Thessaloniki is: Positive/Negative

I like the Archeological Museum of Thessaloniki/ I dislike the Archeological Museum of Thessaloniki

*The measurement was conducted by a 5-point Likert scale ranging from "Definitely disagree" to "Definitely agree"

Involvement (Laurent and Kapferer 1985; Mittal 1995).

Product class involvement

"Museums are very important to me"

"For me, museums do not matter"

"Museums are an important part of my life"

Purchase intention (or brand decision) involvement

"I choose which Museum to visit very carefully"

"Which Museum I visit matters to me a lot"

"Choosing a Museum is an important decision for me"

*The measurement was conducted by a 5-point Likert scale ranging from "Definitely disagree" to "Definitely agree"

Prior visit to the Museum/ website

"Have you ever been to the Archeological Museum of Thessaloniki?" (Yes/ No)

"Have you ever visited this website before?" (Yes/No)

Familiarity with the Museum/Website

Familiarity with the Museum

To me, the Archaeological Museum of Thessaloniki is:

Familiarity with the website

To me, the website of the Archeological Museum of Thessaloniki is:

*The measurement was conducted by a 5-point Likert scale ranging from "Completely unfamiliar" to "Completely familiar"

Appendix B

Manipulation checks Aladwani and Palvia (2002)

Evaluation of High task relevant cues:

The content of the website is:

Useful (i.e. provides appropriate and valuable information to the user's needs)

Complete (i.e. displaying the exhaustive amount of information a user may require from his visit

Clear (i.e. (the website cites information that is understandable, apparent and unequivocal)

Current (the information depicted is contemporary, up-to-date)

Accurate (i.e., the information is precise, detailed and without errors)".

*The measurement was conducted by a 7-point Likert scale ranging from "Definitely disagree" to "Definitely agree". Responses to the items were summed.

Evaluation of low task relevant cues (based on the "Appearance" subscale of the instrument)

The website looks

Attractive

Organized

The website uses:

Fonts properly

Colors properly

Multimedia features properly

*The measurement was conducted by a 7-point Likert scale ranging from "Definitely disagree" to "Definitely agree". Responses to the items were summed.

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Table 1: Sample characteristics

	Web atmospherics			
	Low and High task relevant cues % (108)	**High task relevant cues % (107)**	**Total % (215)**	**Significant Differences**
Gender				X^2=.230, df=1, p<.63
Males	50.0 (54)	46.7 (50)	48.4 (104)	
Females	50.0 (54)	53.3 (57)	51.6 (111)	
Prior museum visit				X^2=.594, df=1, p<.44
Yes	52.8 (57)	49.5 (53)	51.2 (110)	
No	47.2 (51)	50.5 (54)	48.8 (105)	
Prior site visit				X^2=2.728, df=1, p<.10
Yes	4.6 (5)	.9 (1)	4.4 (6)	
No	95.4 (103)	99.1 (106)	97.2 (209)	
Familiarity with the museum	3.57	3.49	3.53	t=.260, p<.80
Familiarity with the website	1.12	1.02	1.07	t=.1.615, p<.11

Table 2: T-test for differences in means by gender

	Males		Females			
	M	**SD**	**M**	**SD**	**t**	**Sig.**
Product class involvement	2.73	.73	2.80	.70	.68	.50
Purchase decision involvement	3.29	1.08	3.36	.89	.46	.64
Familiarity with the museum	3.62	2.49	3.45	2.47	.49	.63
Familiarity with the website	1.08	.46	1.06	.47	.22	.83

Table 3: Effects of low task relevant atmospheric cues and gender on attitude toward site and attitude toward the brand

	Multivariate Effects			Univariate Effects		
Independent Variables	**Wilks Lambda**	**F-Value**	**df**	**Attitude toward the site**	**df**	**Attitude toward the brand**
Covariates						
Product class involvement	.95	5.77	1	1.64	1	3.67
Purchase decision involvement	.99	1.08	1	.01	1	1.37
Familiarity with the museum	.96	3.80	1	.09	1	4.50*****
Main Effects						
Low Task Relevant Cues	.86	15.80	1	**27.94*****	1	**20.81*****
Gender	.95	5.52	1	**9.98****	1	**6.93****
Interactions						
Low Task Relevant Cues * Gender	.93	7.93	1	**12.92*****	1	**11.86*****

*p<.05, **p<.01, ***p<.001

Figure 1 The proposed model for the study.

Figure 2 Effects of low task relevant atmospheric cues and gender on attitude toward the site

Figure 3: Effects of low task relevant atmospheric cues and gender on attitude toward the brand