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Critical Atmospheric Cues in Designing Online Stores: The Case of Amazon.com

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Abstract

Online store environments have changed due to advancements in broadband speed and web development technologies. Despite the widespread real-time interactive features in online stores, social cues have been overlooked in a great number of taxonomies of online store atmospheric cues. To fill the gap, this study considers social cues with other atmospheric cues (i.e., visual, information, and navigation) in the taxonomy, and examines critical atmospheric cues that can generate a pleasure emotional response. The study also investigates whether the pleasure emotional response can lead to the approach behavior of consumers. Amazon.com, the U.S. top online pure player, is used as the specific research setting, and the results demonstrate that all atmospheric cues except visual cues can generate the pleasure emotional response. The pleasure emotional response turned out to be a significant predictor of the approach behavior.

Keywords: atmospherics, online store environment, social cues

1. Introduction

Although U.S. online retailers have achieved significant growth since the early 1990s, the growth rate of the U.S. online market has declined in recent years. E-commerce sales in the United States demonstrated approximately 9% growth in 2016 ($322.17 billion) from the previous year ($294.45 billion), and the growth rate is projected to decrease about 6% by 2021 (Statista, 2016). The decreased growth rate implies that the U.S. online market is getting more saturated. The saturated online market has brought a significant problem especially to online retailers because of easy consumer mobility of online stores. Unlike brick-and-mortar stores where consumers cannot easily move to other stores, online shoppers can easily switch stores by simple clicks.

To gain competitive power, U.S. online retailers have strived to provide favorable online store environments with advanced online technologies to encourage customers to revisit their online stores (Manganari, Siomkos, & Vrechopoulos, 2009). The importance of store environment has been recognized by scholars for a long time, and a number of studies have demonstrated the importance of store environment regardless of store channels (i.e., brick-and-mortar stores or online stores) (Dailey, 2004; Eroglu, Machleit, & Davis, 2003; Manganari et al., 2009). The term *atmospherics* is used in academic fields to represent "the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability" (Kotler, 1973, p. 50). The studies of atmospherics emphasized the importance of positive emotional responses generated from atmospheric cues in a store, which in turn ultimately increase shoppers' revisit intentions (Dailey, 2004; Eroglu et al., 2003; Manganari et al., 2009).

A great number of studies have identified store atmospheric cues that maximize shoppers' approach intentions, and demonstrated critical atmospheric cues in different store environments. In the brick-and-mortar store context, in line with Kotler (1973)'s initial identification of atmospheric cues, a number of studies have reached agreement upon three atmospheric cues: design cues (e.g., layouts, colors, and equipment), ambient cues (e.g., scents, music, and temperature), and social cues (e.g., number, attire, and kindness of sales people) (Baker, Grewal, & Parasuraman, 1994; Baker, Parasuraman, Grewal, & Voss, 2002; Grewal & Baker, 1994; Koo & Kim, 2013; Turley & Chebat, 2002; Turley & Milliman, 2000). However, relatively little research has been conducted on atmospheric cues in the online store context. For instance, Eroglu et al. (2001) classified online store atmospheric cues into two types: high-task online store atmospheric cues (i.e., cues related to shopping tasks,

such as information on products and policies) and low-task online store atmospheric cues (i.e., cues not related to shopping tasks, such as design and colors), and this classification has been adopted by some studies (Chang & Chen, 2008; Ha & Lennon, 2010). In addition, Chang & Chen (2008) identified four factors: technology (navigation function in a website), appearance (visual aspects in a website), and content quality and special contents that are related to information provided in a website. Another study of online atmospheric cues also identified similar atmospheric cues: visual cues (i.e., graphics, colors) and navigation cues (i.e., links, menus) (Koo & Ju, 2010). In sum, previous research suggests three important atmospheric cues for online stores: visual, information, and navigation.

In addition to these three online atmospheric cues, this study suggests another cue that is critical in the current online retail environment: the availability of social interaction in online stores, namely, social cues. Despite commonly available social interaction in current online stores, social cues have been overlooked in existing studies. The fast speed of broadband has brought a new generation of the World Wide Web, called Web 2.0. One of the most remarkable changes in Web 2.0 is the availability of real-time interaction that can be utilized by online retailers (Riegner, 2007). For instance, online stores provide web places where users can share and exchange their opinions (e.g., freeboards, blogs, customer reviews, etc.). In addition, with the growth of social networking sites such as Facebook, Instagram, and Twitter, online stores also provide functions by which consumers can easily share products and their consumption experiences via these social channels. Therefore, social cues are clearly recognized as one of the critical atmospheric cues for current online retail stores.

The purpose of this study is to examine how four aforementioned online store atmospheric cues (i.e., visual, information, navigation, and social cues) generate positive emotion that can make consumers approach online stores again. Business practitioners can prioritize their investment in improving online store atmospheric cues by understading critical cues in online stores. Of the many online retail stores, Amazon.com was selected as a research setting for this study because of its great contribution to the growth of the U.S. e-commerce. Industry data showed that approximately 27% of the total U.S. retail growth was made by Amazon.com last year, and about 42% of U.S. e-commerce was accounted for by Amazon.com (Weinswig, 2016).

2. Literature Review

2.1 Atmospherics and Emotional Responses

Kotler (1973) proposed that consumers can recognize multiple environmental cues in a retail store, and their experience of the environmental cues can generate certain emotional states that in turn influence consumers' intention of revisiting the store. These environmental cues are conceptualized as atmospherics in the Mehrabian-Russell (M-R) model (Mehrabian & Russell, 1974). According to the M-R model, atmospheric cues ultimately affect approach-avoidance behavior, which is mediated by three emotional states of pleasure (P), arousal (A), and dominance (D). Among PAD emotional states, dominance was later eliminated by Russell and Pratt (1980) because dominance somewhat contains cognitive aspects. As for remaining two emotional states of pleasure and arousal, pleasure is relevant to general positive emotional responses, such as feeling joyful or happy, and arousal is associated with excessive positive emotional responses, such as feeling excited or stimulated. Given that the research setting of this study, Amazon.com, focuses more on the utilitarian aspect of the shopping experience (i.e., calling for quick and easy information seeking and efficient shopping) (Fiore, Jin, & Kim, 2005; Kim & LaRose, 2004) compared to those that offer emotional site design (e.g., large images and upbeat background music), pleasure seems the most relevant emotional response to the current study context because it is hard to expect excessive positive emotional response of arousal in Amazon.com. Thus, the study considered only pleasure in the research model.

2.2 Online Store Atmospheric Cues

2.2.1 Visual Cues

Visual cues are the attributes in a retail store that stimulate human vision, such as fixtures, layouts, and colors (Baker et al., 2002). In the context of online stores, visual cues are associated with comprehensive aesthetic quality of online stores (e.g., colors, image display, webpage design) (Demangeot & Broderick, 2010; Manganari et al., 2009; Porat & Tractinsky, 2011). These visual cues have already been considered in existing taxonomies of online store atmospheric cues. For instance, Eroglu et al.'s (2001) well-known classification of online store atmospheric cues contains high-task and low-task cues. Low-task cues are defined as cues not associated with shopping tasks, such as design and colors, and these cues can be considered as visual cues. Chang & Chen (2008) used the appearance factor to represent visual cues in their classification. In line with the M-R model, visual cues in the online store environment may generate pleasure emotional responses. Thus, the following hypothesis is posited:

H1: Visual cues in an online store environment will positively affect pleasure.

2.2.2 Information Cues

Consumers receive various information when they are shopping in online stores, such as information about products (e.g., sizes, prices, material, etc.), companies, upcoming events, and so forth, and information is delieved via diverse formats (e.g., text, audio, and video) in online stores. Information cues have been considered in a great number of online atmospheric studies, and multiple aspects of information have been addressed in online atmospheric taxonomies. For instance, the helpfulness and usefulness of information were considered in Demangeot & Broderick's (2010) online atmospheric taxonomy, and Chang & Chen (2008) considered information quality (e.g., clear and accurate information). According to the M-R model, information cues in an online store environment will generate a positive emotional state of pleasure, and this study thus proposes the following hypothesis:

H2: Information cues in an online store environment will positively affect pleasure.

2.2.3 Navigation Cues

Unlike brick-and-mortar stores, where consumers can find information in limited space, online stores have technically unlimited space that can offer massive amounts of information. To help consumers easily find their desired information, online stores provide diverse functions, such as navigation bars, search options, logical menu hierarchies, organization of information, and so on, and these functions are considered as navigation cues. Navigation cues have been already included in various taxonomies of online store atmospheric cues (Chang & Chen, 2008; Demangeot & Broderick, 2010; Porat & Tractinsky, 2011; Richard, 2005; Wang, Minor, & Wei, 2011). Following the M-R model, the study posits the following hypothesis:

H3: Navigation cues in an online store environment will positively affect the pleasure emotional response.

2.2.4 Social Cues

Social cues have been extensively studied in atmospheric studies in a brick-and-mortar store context. Shoppers in a brick-and-mortar store directly or indirectly interact with sales people and other shoppers in the store (Baker et al., 2002; Grewal & Baker, 1994; Turley & Chebat, 2002; Turley & Milliman, 2000). However, social cues have been largely overlooked in online atmospheric studies.

The Web 2.0 environment with fast broadband speed has enabled Internet users to interact with other Internet users in real time through diverse methods, such as forums, blogs, communities, and social media (Constantinides & Fountain, 2008). With the availability of real-time interaction, online stores now provide diverse interactive features, such as live chatting with sales people, customer product reviews, in-store communities where consumers can interact with other consumers having similar interests, and social media connectivity by which consumers can share specific products easily through their social media accounts. That is to say, consumers in online stores these days are able to clearly perceive diverse social cues. Therefore, based on the M-R theory, the study posits the following hypothesis:

H4: Social cues in an online store environment will positively affect the pleasure emotional response.

2.2.5 The Effect of Pleasure on Approach Behaviors

Drawing upon the stimulus-organism-response (S-O-R) paradigm, the M-R theory demonstrates that the impact of atmospheric cues (S) in a store environment on consumers' approach behaviors (R) is mediated by emotional responses (O) (Mehrabian & Russell, 1974). The significant effect of pleasure on the behavioral response has been demonstrated in a number of atmospheric studies conducted in online store settings (Eroglu et al., 2003; Fiore et al., 2005; Ha & Lennon, 2010). Eroglu et al. (2003) demonstrated that the pleasure emotion increased consumers' approach intention in mock online apparel stores. Ha & Lennon (2010) also demonstrated that the pleasure emotion generated in online apparel stores positively affected consumers' purchase intentions. According to the M-R model and previous online atmospheric studies, the study proposes the following hypothesis:

H5: The pleasure emotional response generated in an online store environment will positively affect approach behaviors.

2.2.6 The Research Setting: Amazon.com

Amazon.com carries a wide range of product categories, such as clothing, electronics, bedding, books, and digital content (e.g., video and music files). Since Amazon.com sells a wide range of product categories, the results of this study do not have to be limited to specific specialty online stores. Also, the site is the most popular in the United States in that Amazon.com shows approximately 183 million visits per month, compared to 107

million for eBay, 101 million for Wal-Mart, and 84 million for Apple sites (Bolton, 2016). The annual sales of Amazon.com were about $107 billion in 2015 (Forbes, 2016), and the number accounted for about a 42% market share of U.S. e-commerce in 2015 (Weinswig, 2016).

2.3 Research Model

The study proposed a research model based on the M-R theory, demonstrating that atmospheric cues in a store generate positive emotion, and the positive emotion, in turn, leads to approach behavior (Mehrabian & Russell, 1974). In sum, this study posits that the four atmospheric cues (i.e., visual, information, navigation, and social cues) will positively affect the emotional state of pleasure, which, in turn, increases approach behavior. See Figure 1.

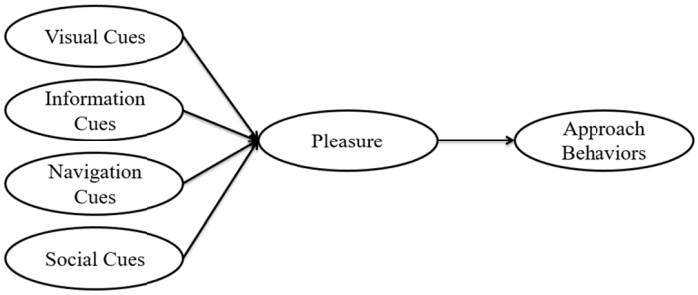

Figure 1. Research model

3. Method

3.1 Instrument

A self-administered questionnaire was developed by adopting existing scales from the related literature: visual cues from Lorenzo-Romero, Constantinides, Alarcón-del-Amo (2013), information cues from Richard (2005), navigation cues from Chang & Chen (2008), and pleasure and approach behaviors from Donovan & Rossiter (1982). When it comes to social cues, it was hard to find existing scales in online atmospheric studies due to the lack of online atmospheric studies considering social cues. Thus, the study adopted scales regarding social presence (Dash & Saji, 2008) and community features (Bart, Shankar, Sultan, & Urban, 2005) in online stores. All items were measured on a seven-point Likert scale, and detailed scale items are listed in Table 1.

Table 1. Scale items

Constructs	Scale Items
Visual cues	Amazon.com uses an attractive layout. (VISUAL1)
	Amazon.com uses attractive colors. (VISUAL2)
	Amazon.com uses visually pleasing design. (VISUAL3)
	The way Amazon.com displays its products is attractive (VISUAL4)
	Amazon.com uses attractive images. (VISUAL5)
Information cues	The content of Amazon.com appears to be up-to-date. (INFO1)
	Amazon.com provides accurate information. (INFO2)
	The information on Amazon.com is helpful. (INFO3)
	Amazon.com is informative. (INFO4)
	There is enough information on Amazon.com. (INFO5)
Navigation cues	Amazon.com looks easy to navigate through. (NAVI1)
	Amazon.com has valid links. (NAVI2)
	Navigation through Amazon.com is logical. (NAVI3)
	One can find information easily in Amazon.com. (NAVI4)
Social cues	Amazon.com provides a lot of areas where users can provide their opinions. (SOCIAL1)
	Amazon.com well provides customer reviews of products. (SOCIAL2)
	One can easily see what other users think of the products in Amazon.com. (SOCIAL3)
	Amazon.com well indicates the number of reviews or ratings. (SOCIAL4)
Pleasure	My shopping experience was contented. (PLEA1)
	My shopping experience was happy. (PLEA2)
	My shopping experience was satisfying. (PLEA3)
	My shopping experience was pleasing. (PLEA4)
	My shopping experience was relaxing. (PLEA 5)
Approach behaviors	I liked Amazon.com. (AB1)
	I enjoyed shopping in Amazon.com. (AB2)
	I was active in browsing and exploring Amazon.com. (AB3)
	I will return to Amazon.com in the future. (AB4)

3.2 Sample and Data Collection

The online survey platform Qualtrics was used to design an online survey, which was distributed via Mechanical Turk (www.mturk.com), an online crowdsourcing platform where participants can get paid if they complete an online survey (Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010). For the qualification check, the survey asked respondents to pick an online store that they most recently visited, and used respondents picked Amazon.com from a list. The survey provided a link to Amazon.com and asked respondents to completely experience all possible menus before responding to questions.

The study collected 1,374 usable surveys. Ages of respondent ranged from 18 to 75, with a median age of 29, and there were 760 (55.3%) male respondents and 614 (44.7%) female respondents. As for the ethnic identification, 663 respondents (48.3%) were Asian or Pacific Islander, followed by Caucasian (n = 485, 35.3%), African-American (n = 76, 5.5%), Native American (n = 49, 3.6%), and Hispanic (n = 43, 3.1%). The majority of respondents' (n = 858, 62.4%) annual income was less than $40,000, and about 73% of respondents (n = 1,003) held at least bachelor's degrees. When it comes to marital status, 695 respondents (50.6%) were single or never married, and 679 respondents (49.4%) were married.

4. Results

4.1 Measurement Model

Mplus Version 6.1 was used to test measurement and structural models (Muthen & Muthen, 2010), and robust maximum likelihood (MLM) was specified for parameters of measurement and structural models in order to be free from multivariate normality issues (Satorra & Bentler, 2010). The comparative model fit index (CFI), Tucker Lewis index (TLI), and root mean square error of approximation (RMSEA) were used to evaluate model fits for both measurement and structural models. Confirmatory factor analysis (CFA) was conducted to test the measurement model. The measurement model showed all acceptable model fit indices: CFI = 0.974; TLI = 0.971; RMSEA = 0.028.

Convergent validity was evaluated by factor loadings, composite reliabilities, and average variance extracted (AVE). All factor loadings exceeded the threshold of 0.40 (Hair, Anderson, Tatham, & Black, 1995), and composite reliabilities of all factors also exceeded the threshold of 0.60 (Fornell & Larcker, 1981). When

composite reliabilities of all factors exceed 0.60, AVE values over 0.40 are considered acceptable (Fornell & Larcker, 1981), and AVE values of all factors were greater than the threshold of 0.40. Thus, the convergent validity was supported. See Table 2.

Table 2. CFA results

Construct	Scale Item	S.L.[a]	CR[b]	AVE[c]
Visual cues	VISUAL1	0.791	0.887	0.612
	VISUAL2	0.758		
	VISUAL3	0.813		
	VISUAL4	0.793		
	VISUAL5	0.755		
Information cues	INFO1	0.707	0.840	0.512
	INFO2	0.744		
	INFO3	0.750		
	INFO4	0.679		
	INFO5	0.695		
Navigation cues	NAVI1	0.744	0.815	0.526
	NAVI2	0.610		
	NAVI3	0.757		
	NAVI4	0.777		
Social cues	SOCIAL1	0.686	0.840	0.567
	SOCIAL2	0.784		
	SOCIAL3	0.768		
	SOCIAL5	0.771		
Pleasure	PLEA1	0.669	0.892	0.625
	PLEA2	0.848		
	PLEA3	0.860		
	PLEA4	0.844		
	PLEA5	0.713		
Approach behaviors	AB1	0.861	0.867	0.623
	AB2	0.854		
	AB3	0.745		
	AB4	0.686		
Fit Statistics	CFI	0.974		
	TLI	0.971		
	RMSEA	0.028		

Note. [a]Standardized loading; [b]Composite reliability score; [c]Average variance extracted.

The study tested correlations of all possible pairs of factors to evaluate the discriminant validity. Kenny (2011) demonstrated that correlations exceeding the threshold of 0.85 are considered to have poor discriminant validity. All paired correlations were below 0.85, and ranged from 0.494 to 0.735. Therefore, the discriminant validity was supported.

4.2 Structural Model

All hypotheses were tested by testing the structural model. The structural model shows great model fit indices: CFI = 0.969; TLI = 0.965; RMSEA = 0.031. Information cues ($\beta = 0.203$, $p = 0.015$), navigation cues ($\beta = 0.470$, $p < 0.000$), and social cues ($\beta = 0.196$, $p < .000$) had enough power to generate the pleasure emotional response; thus, H2, H3, and H4 were supported. However, visual cues ($\beta = 0.040$, $p = 0.394$) did not explain the pleasure emotional response; therefore, H1 was not supported. Lastly, the pleasure emotional response led to approach behavior ($\beta = 0.859$, $p < .000$), supporting H5. See Table 3.

Table 3. SEM results

Hypothesis and Structural Path	Standardized Regression Weight	Standard Error	P-value	Result
H1: Visual cues → Pleasure	0.040	0.047	0.394	Not supported
H2: Information cues → Pleasure	0.203	0.083	0.015	Supported
H3: Navigation cues → Pleasure	0.470	0.094	0.000	Supported
H4: Social cues → Pleasure	0.196	0.051	0.000	Supported
H5: Pleasure → Approach behavior	0.859	0.021	0.000	Supported
	CFI	0.969		
Fit Statistics	TLI	0.965		
	RMSEA	0.031		

5. Discussion

Due to strong competition in the U.S. online market (Statista, 2016), U.S. online retailers have strived to provide great online shopping environments (Manganari et al., 2009). Researchers have also demonstrated the significance of a variety of online store atmospheric cues in creating positive online shopping experiences and provided guidelines for better designing online store environments to online business practitioners (Chang & Chen, 2008; Ha & Lennon, 2010; Koo & Ju, 2010).

The major gaps in previous research on online store atmospheric cues are inconsistency (i.e., each taxonomy considered few atmospheric cues; otherwise, the same atmospheric cues were named in a different way in different taxonomies) and the absence of considering social cues in taxonomies of online store atmospheric cues. To fill these gaps, this study addressed four representative online store atmospheric cues (i.e., visual, information, navigation, and social) and investigated the impact of those atmospheric cues on the pleasure emotional response, which can lead to approach behavior toward online stores.

Major findings are discussed and highlighted based on the results. First, visual cues did not have enough power to generate a pleasure emotional response in Amazon.com. This result is different from some previous studies regarding online store atmospherics (Eroglu et al., 2003; Fiore et al., 2005; Ha & Lennon, 2010). One possible explanation for this result is that these previous studies (Eroglu et al., 2003; Fiore et al., 2005; Ha & Lennon, 2010) were conducted in the context of online apparel specialty stores where visual aesthetics of a site are critical, while the research setting of the current study is Amazon.com and may be more geared toward the functional features of the site, such as product information and consumer reviews (Fiore et al., 2005; Kim & LaRose, 2004). Thus, visual cues in Amazon.com may be less important to shoppers compared to other atmospheric cues. Second, the results demonstrated the significant impacts of other atmospheric cues in the taxonomy of online store atmospheric cues (i.e., information, navigation, and social) on the pleasure emotional response. Particularly, navigation cues had the most significant power to generate the pleasure emotional response, and this result would be caused by consumers' strong motives for fast and effortless information seeking in Amazon.com (Kim & LaRose, 2004).

Third, given the availability of interactive features in current online retailers, this study proposed social cues as one of the most significant retail atmospheric cues that might affect consumers' positive emotional and behavioral responses. The results did demonstrate that social cues have the significant power to generate pleasure emotional responses. Demonstrating the significant impact of social cues on positive emotional and behavioral responses is one of the important contributions of this study. In addition, from a managerial perspective, this result suggests that business practitioners should make an effort to provide functions that enhance social features, such as freeboards, blogs, customer reviews, and so forth. Providing a live chat function and site links to companies' social media web pages would be also helpful to enhance social interaction between sellers and consumers.

6. Limitations and Future Research

The findings of this study cannot be fully generalizable. Despite the relatively large sample size of 1,374 responses, the the survey was only collected from U.S. consumers. In addition, one specific online store, Amazon.com, was used as the research setting in this study. The findings of the study may differ in different online stores where consumers have different shopping orientations. Thus, future studies can replicate this study in multiple different settings to investigate possible differences in the importance of critical online store atmospheric cues in different settings.

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