

# Culture influences on emotional responses to on-line store atmospheric cues

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## Abstract

On-line retailing created a global marketplace with an innumerable array of competitors. Essential to on-line store's ability to attract and retain customers globally is its store atmospherics, which are design elements used to garner attention and create a positive buying environment [Kotler Phillip. Atmospherics as a marketing tool. *Journal of Retailing* 1974; 49: 48–64.]. The research presented here assesses how behavioral and emotional responses to on-line store atmospherics vary across collectivist and individualist cultural value systems. The contribution is significant because additional research on understanding how culture affects customers' responses to the on-line store site design is needed [Chan Ricky Y. K. and Tai Susan. How do in-store environmental cues influence Chinese shoppers? A study of hypermarket customers in Hong Kong. *Journal of International Consumer Marketing* 2001; 13 (1): 73–104.; Eroglu Sevgin, Machleit Karen and Davis Lenita. Atmospheric qualities of on-line retailing: A conceptual model and implications. *Journal of Business Research* 2001; 54 (2): 177–184.; Menon and Kahn, 2002]. Using two different site designs for a fictional on-line retailer, American and Chinese University students evaluated their shopping experience at an assigned site. Findings: Cultural values do affect customers' responses to atmospheric cues. The study examines the inter-relationships between customers' emotional responses.

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## 1. Introduction

Store atmospherics represent “the conscious designing of space to create a positive buying environment to produce specific emotional effects in the buyer that enhance purchasing probability” (Kotler, 1974, p.174). Store atmospherics improve customers' on-line shopping experience (Eroglu et al., 2001; Szymanski and Hise, 2000). On-line store atmospherics include all the cues used to design the website and its layout with examples including: the background color and pattern, hyperlinks, icons, overall color scheme, typeface and web

borders (Eroglu et al., 2001). Research shows that both off- and on-line store atmospheric elements induce pleasure and arousal responses, which in turn affect customers' approach and avoidance behavior towards the store (Donovan and Rossiter, 1982; Dube et al., 1995; Eroglu et al., 2001).

Culture is an important influence on customers' responses to store atmospherics. Culture affects how customers construe events and contexts, producing a range of emotional responses to a stimulus (Russell and Pratt, 1980). The customer interface with a store should ideally be designed so that the store attracts and retains customers across cultures (Kim, 1999). Barber and Bardrew (1998) propose that attracting and retaining customer occur when a website reflects the cultural nuances of its target audience. Chau et al. (2002) recommend that on-line stores adapt their atmospherics to the nuances of a given culture. Hofstede et al. (1999) agree cultural nuance is important stating that when studying individual behaviors, cultural heterogeneity is a

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significant differentiating variable. Ensuring cultural compatibility is a daunting task given the many different cultures that exist.

Some researchers have dissenting views about including cultural nuances at the website. Cole et al. (2000) feel cultural differences do not affect on-line retailers' ability to attract and retain customers, citing that established on-line stores such as Amazon are globally successful using a standardized customer interface. Johnston and Johal (1999) propose that the Internet is beyond cultural influence and, therefore, not identifiable with cultural classification schemes.

While researchers speculate about culture's influence on Internet shopping behavior, no empirical evidence exists to support either perspective (Chan and Tai, 2001). Current cross-cultural research on shopping behavior is limited and fails to make any direct comparisons or model on-line customer behavior (Chan and Tai, 2001). Calls for further cross-cultural research, particularly in the on-line setting, are in academic journals (Cole and O'Keefe, 2000) and the commercial press (Forbes, 2000).

The research presented here addresses the shortcomings in the current literature by assessing how behavioral and emotional responses to on-line store atmospherics vary across two very different cultural value systems: collectivism and individualism (Hofstede, 1980). More specifically, the responses of Chinese customers, a collectivistic culture, to on-line store atmospherics are directly compared to the responses of Americans, an individualistic culture. Understanding the differences between these two cultures benefits on-line retailing since both represent a sizeable share of the on-line retailing market. China is second only to America in the number of Internet users (Horrihan and Raine, 2003).

## 2. Literature review

Kroeber and Kluckhohn (1952, p. 2) noted 186 definitions of culture. Among these many definitions of culture a consistent theme emerges "patterns, explicit and implicit, of or for behavior transmitted by *symbols*... [and] ideas *and their attached values*" (emphasis added). Keesing (1974) further developed a theme of symbols and attached values by defining culture as three ideational themes: Cognitive (language), Structuralist (institutions) and Symbolic culture. Symbolic culture has important implications for understanding culture's influence on customers' responses and interpretations of on-line retail store atmospherics. Symbolic culture has two components (Triandis and Vassiliou, 1972): objective culture (a physical object whose function is publicly verifiable) and subjective culture (how a group perceives and controls their social environment through norms, roles, rules, and values). Given that store atmospherics are primarily composed of signs and symbols, differences in symbolism or the symbolic system of a culture would affect how customers respond to an on-line store's design.

National cultures are often differentiated by the extent to which citizens adopt values of collectivism and/or individualism. A central tenet of collectivism is the need for individuals to form groups where connectedness, mutual deference, or compromise and social interdependence are actively encouraged (Tafarodi and

Swann Jr., 1996). Chinese cultural traits are based upon collectivism values (Hofstede, 1980; Gong, 2005; Sussman, 2000). In contrast, individualistic cultures encourage and enforce the right of individuals to be assertive, autonomous, creative, emotionally independent, and reliant upon their own initiative (Hofstede, 1980; Tafarodi and Swann, 1996; Triandis, 1988). Individualistic cultural traits and values are seen in western cultures such as America and the United Kingdom (Hofstede, 1980).

The values of collectivism and individualism create very different symbolic-subjective cultures. When making judgments, individualism encourages a direct focus on internal responses to the context (Choi et al., 1999; Fletcher and Ward, 1988). Therefore, the symbolic-subjective culture of individualism tends to place less importance on the context and cues and instead emphasizes individual's responses to context (representing a low context culture). Collectivism promotes group well-being and places a greater emphasis upon causal reasoning and forming perceptions about social context, situational constraints, and social roles (Miller, 1984; Morris and Peng, 1994; Oyserman et al., 2002; Triandis, 1995). The symbolic-subjective culture of collectivism is context sensitive, therefore, context is an important consideration when making decisions. Therefore, a collectivist customer should give greater consideration to the on-line store's signs and symbols when making decisions than an individualistic customer.

Eroglu et al. (2001), using the Stimulus–Organism–Response framework, categorized the signs and symbols used in on-line stores to understand how they affect customers' internal states and behaviors. On-line store cues were categorized as having either low or high task relevance. The low or high task relevance classification is based upon the functionality of the cues in completing the shopping task. High task relevant cues enable the purchasing process by providing the necessary information to make purchases, such as: delivery, pictures of merchandise, price, return policies and terms of sale. Low task relevant cues are not essential in accomplishing the shopping task (Eroglu et al., 2001) but instead are used to establish the store image or provide a context for the shopping experience, i.e. animation, background color, patterns and web borders (Eroglu et al., 2001). Given that Chinese on-line customers are from a high context culture, low task cues would be an important element of their shopping experience.

**H1.** Chinese on-line customers, when compared to American on-line customers, find (a) low task and (b) high task cues more helpful in completing the shopping task.

Eroglu et al. (2001) found that the presence of low task relevant cues (the stimulus) positively affects arousal (the organism) which in turn leads to approach behavior among on-line store customers (the response). Since Chinese on-line customers are from a high context culture, they should positively respond to the presence of low task relevant cues. Chinese on-line customers ought to experience higher arousal and pleasure when low relevant task cues are present versus absent. The emphasis Chinese on-line customers place on context is such that the relationship between the stimuli (low task cues) and response (pleasure and arousal) should be

stronger for Chinese on-line customers than American on-line customers. The following is hypothesized:

**H2.** The presence, rather than the absence, of low task relevant cues positively affects the (a) arousal and (b) pleasure of Chinese on-line customers.

**H3.** The positive relationship between the presence of low task relevant cues and (a) arousal and (b) pleasure will be stronger for Chinese on-line customers than American on-line customers.

Eroglu et al. (2003) demonstrate that the presence of low task relevant cues affects the level of pleasure that customers experience at the on-line store. However, the research presented here expects that the constraints of collectivistic culture, limits the expression of pleasure with low task relevant cues. Collectivism encourages the suppression of emotional expressions for the sake of group harmony (Oyserman et al., 2002) while the value system of individualism actively encourages the exploration and expression of emotion (Oyserman et al., 2002). A conscious inhibition of ongoing emotion-expressive behavior, such as answering a survey on emotional responses, is one method of suppressing emotions (Gross, 1998). Research confirms that Chinese typically do not express their emotions publicly (Kindle, 1982; Yau, 1994). Therefore, when asked, Chinese customers should be more reticent about expressing their feelings than American on-line customers (Chan and Tai, 2001; Yang, 1993).

**H4.** Overall, Chinese on-line customers when exposed to on-line store atmospherics experience lower levels of (a) pleasure and (b) arousal than American on-line customers.

An individual's ability to cognitively process their environment limits suppression of emotional expression. Humans have limits to their cognitive capacity and therefore they have to be selective when expending cognitive resources (Kahnemann, 1973). Felt arousal restricts attention capacity, subsequently decreasing their ability to cognitively process all of the informational elements within an environment (Easterbrook, 1959; Gross, 1998). The demand for cognitive resources inhibits an individual's ability or inclination to suppress emotional responses. Additionally, arousal often serves as a heuristic cue for positive information (Bagozzi, 1997). Therefore, because the ability to suppress is inhibited by arousal, and arousal is a heuristic cue for positive emotions, arousal positively affects the relationship between low task cues and pleasure for Chinese customers. The following is hypothesized:

**H5.** Arousal positively affects Chinese on-line customers' shopping pleasure.

Research has determined that pleasurable shopping experiences lead to greater approach and less avoidance behavior (Donovan and Rossiter, 1982; Hui and Bateson, 1991). Satisfaction, pleasure and approach are universal concepts, and may represent an etic cultural response, i.e. a universal cultural value, applicable to both American and Chinese on-line customers.

**H6.** A pleasurable shopping experience leads to (a) approach behavior and (b) greater levels of satisfaction, regardless of a customer's cultural orientation.

**H7.** Increased satisfaction positively affects on-line customer's approach behavior.

### 3. Method

#### 3.1. Product category and website design

Following methods used in Eroglu et al.'s (2001) research, a similar on-line shopping experiment was created. Two sets of on-line stores were designed for China and the U.S.A. (four on-line stores in total), all with the fictitious retailers name "Our Store". The on-line stores sold music compact discs (CDs), which are a top selling product category for on-line retailers in America and China (China National Network Information Center Report, 2002; Forrester Research, 2004).

Navigation and site content were exactly the same for all on-line stores, with variation only in relation to the presence of low task relevant cues. One on-line store had both high and low task cues, while the other had high task cues only, that is, the presence versus absence of background colors; the use of animated icons versus text links only; and visual cues as an indication of secure connection versus text only.

All the websites began with an introduction page with the following links: "About Us" (a description of the company); "Products" (a selection of seven different compact discs, picture of compact disc covers and a link to sample selected tunes from the albums); "Ordering Policies" (extensive information about shipping, gift wrapping services, payment and order tracing information which included a link to the order form); "What people say about us" (a listing of testimonials from former customers and an accompanying feedback form); and a "Site Map" (a listing of all the links in the website and a search feature). The site with low task relevant cues had dark blue text (rather than black), a photograph of a compact disc on the introduction page, a grey background with a repeating oval background repeated on every page, a logo indicating third-party approval (Better Business Bureau affiliation emblem), an animated icon (a dancing compact disc) next to each link and an animated Visa/MasterCard logo on the ordering policies page. By way of contrast, the site with high task cues only had a white background and black text on every page, text and text links were used to indicate third-party approval, pricing information, and accepted methods of payment information. Pictures of the product and samples of the music were included at both sites since they are highly relevant to completing the shopping task and are considered a necessary part of completing a purchase.

Instrument equivalence across cultures was obtained by using back-translation. The English language sites were designed first and then translated into Mandarin by one of the co-authors. Another person fluent in Mandarin translated the site back into English. A few grammatical errors were found and subsequently corrected. The process was repeated until all the websites were accepted as being identical in their meaning.

#### 3.2. Sample and procedure

The sample groups were comprised of 199 American university undergraduates and 214 Chinese university

undergraduates in Beijing. The participants were 20–21 years of age, their similarities in age and education satisfied the category equivalency needed to make cross-cultural comparisons. The participants were similar in their familiarity with the Internet. Bin and Sun (2003) noted that 52.9% of Chinese users of the Internet are in their 20s and 30s, while 60% of Americans Internet users are aged 18–54. Twenty year olds are large consumers of compact discs. When surveyed about Internet usage experience, using a scale ranging from 1 “Very Familiar” through to 5 “Not Familiar at all”. Both sample groups had extensive experience ( $\bar{X}_{China}=2.49$  versus  $\bar{X}_{US}=1.90$ ,  $P>.05$ ). The university students met all these criteria.

The participants were randomly assigned to one of the two different on-line stores designed for their country. They were instructed to browse through the website and then evaluate the experience by completing an on-line questionnaire. The questionnaire measured: approach/avoidance, arousal, helpfulness of store cues, pleasure, satisfaction, Internet experience, and cultural values.

### 3.3. Measures and cross-national measurement invariance

The reliability of each measure used in the study was verified in the following way:

**Avoid/approach measure-** The study used a previously developed scale by Eroglu et al. (2003). The scale contains the following semantic differential items: “How much would you like to either avoid or approach this particular site while shopping?”, “How much would you approach/avoid looking around or exploring the Website?”, “Once at the site how much did you enjoy exploring?”, and “How much time would you like to spend looking around this site?” The scale’s reliability was  $\alpha=.93$  and  $\alpha=.72$  for the U.S.A. and China, respectively.

**Satisfaction-** Satisfaction was measured with a three item Likert scale: “I was satisfied with my shopping experience at the site”, “I enjoyed visiting the site” and “Given a choice I would probably go back to the site.” The scale reliability was  $\alpha=.81$  and  $\alpha=.77$  for the U.S.A. and China, respectively.

**Pleasure and arousal-** These emotions were measured using a semantic differential scale adopted from the Pleasure–Arousal–Dominance scale (Mehrabian and Russell, 1974). Since Russell (1979) found that pleasure and arousal adequately captures the range of emotional responses, dominance was not included. The following items were used to measure pleasure; happy/unhappy, pleased/annoyed, and contented/melancholic, producing high reliability of  $\alpha=.94$  for both countries. The items measuring arousal were: aroused/unaroused, stimulated/relaxed, excited/calm, frenzied/sluggish, jittery/dull, and wide-awake/sleepy, producing reliability scores of  $\alpha=.90$  and  $\alpha=.89$  for the U.S.A. and China, respectively.

**Helpfulness-** A listing of all the design elements/cues used to create the on-line stores were provided to the participants (i.e. background color, picture of the product, product samples, and text fonts). Retrospectively, participant rated how helpful individual on-line store cues were to the shopping experience on a scale from 1–7, with 1 being not helpful at all and 7 being

very helpful. The averages of the scores are used to reflect the overall helpfulness of both low and high task cues.

## 4. Analysis

### 4.1. Manipulation checks and measurement equivalence

The collectivism/individualism values of our participants were measured using Hofstede’s (1980) Collectivism/Individualism Scale. The scale was reliable across both the Chinese and U.S.A. samples ( $\alpha=.94$  and  $.88$ , respectively) and a *t*-test confirmed that the Chinese sample was significantly higher in collectivist cultural values than the American sample ( $t=4.46$ ,  $P<.001$ ).

Using Steenkamp and Baumgartner’s (1998) guidelines for cross-national comparisons, the measurement equivalence of the key measurement variables was tested using confirmatory factor analysis. Scalar invariance of the measures must be established so that the cross-country differences in the means of the observed items may be attributed to the differences in the means of the underlying constructs. Table 1 indicates no differences in chi-square between the full metric invariance model and the configural invariance model. The configural invariance model also shows no increase from the baseline model (i.e., with no constraints). The results confirm that our measurements for all the constructs of interest were relevant across the two countries and achieved full scalar invariance. Thus the observed differences were comparable.

### 4.2. Hypotheses testing

H1 and H4 were confirmed with a series of *t*-tests. Specifically, H1 stated that Chinese customers will perceive higher helpfulness of both low/high task store cues. It was supported for high task cues ( $\bar{X}_{China}=3.82$  versus  $\bar{X}_{US}=3.33$ ,  $P<.001$ ) and for low task cues ( $\bar{X}_{China}=3.44$  versus  $\bar{X}_{US}=2.86$ ,  $P<.001$ ). H4 stated that Chinese versus American customers will experience lower levels of pleasure and arousal in the on-line store visit. The hypothesis was also supported. Chinese customers when exposed to store atmospherics experienced less pleasure, than their American counterparts, ( $\bar{X}_{China}=4.87$  versus  $\bar{X}_{US}=5.14$ ,  $P=.025$ ) and less arousal ( $\bar{X}_{China}=3.10$  versus  $\bar{X}_{US}=3.93$ ,  $P<.001$ ).

### 4.3. The Structural Model

Simultaneously the other hypothesized relationships are tested using LISREL 8.3 (Joreskog and Sorbom, 1999) for both

Table 1  
Model comparisons

	$\chi^2$ value	df	RMSEA	CAIC	CFI	SRMR
Baseline model (configural invariance)	577.20	196	.069	1111.17	.92	.061
Full metric invariance model	646.07	208	.072	1095.72	.91	.061
Factor variance invariance model	656.57	218	.070	1035.96	.91	.072



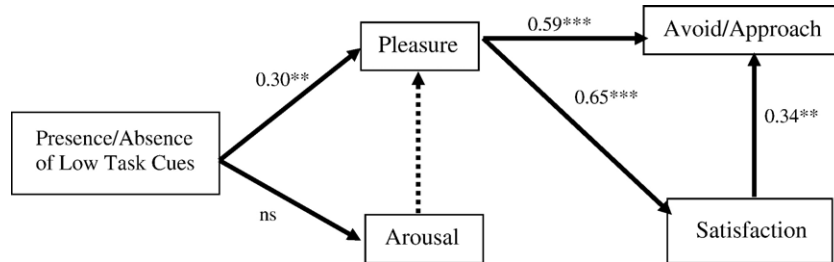


Fig. 1. Stimulus organism response model for American customers in an on-line store. \*\*Significant ( $P < .05$ ). \*\*\*Significant ( $P < .001$ ).

the U.S. and Chinese samples. For the U.S. model, the chi-square statistic, which is highly influenced by a large sample size, was significant [ $\chi^2(85) = 133.18$ ,  $P < .001$ ]; however, all other fit indices not as heavily influenced by sample size indicated support for the hypothesized model (CFI = .99, GFI = .92, NFI = .97, RMSEA = .054, and SRMR = .055; Bollen, 1989). Similarly, satisfactory fit indices were achieved for the Chinese model ( $\chi^2(85) = 145.01$ ; CFI = .98, GFI = .92, NFI = .96, RMSEA = .058, and SRMR = .054). Figs. 1 and 2 illustrate the path coefficients for both models.

The model, supported by the empirical data, indicated that the Chinese were significantly different from our American sample group. Specifically, the data supported H2<sub>a</sub> which predicted that Chinese customers, when exposed to the site with low task relevant cues, would experience higher levels of arousal than those exposed to the non-low task cues website. The path between the presence of low task cues and arousal was significant with a coefficient of .34 ( $P = .05$ ). The proposed relationship was insignificant for the American model, with a standardized coefficient of .07 ( $P = .20$ ). Therefore, H3<sub>a</sub> was supported, which stated that the relationship between the presence/absence of low task cues and arousal would be stronger for Chinese versus American customers. H2<sub>b</sub> predicted that low task cues would positively affect the Chinese customer's level of pleasure. The hypothesis is not supported by the data. The path coefficient is insignificant with a standardized coefficient of .07 ( $P = .20$ ). The relationship is significant in the American model with a path coefficient of .30 ( $P = .049$ ). Therefore, H3<sub>b</sub> which stated that the relationship between the presence/absence of low task cues and pleasure would be stronger for Chinese versus American customers was not supported.

H5 predicted that arousal would positively affect the relationship between Chinese customers pleasure. The path from arousal to pleasure is significant with a coefficient of .36

( $P < .001$ ). In fact, because the relationship between low task relevant cues and pleasure is insignificant, arousal actually mediates the relationship between low task relevant cues and pleasure (Barron and Kenny, 1986). H6a predicts that a pleasurable shopping experience leads to higher approach intention. The Chinese data supports H6a, the path is significant with a coefficient of .45 ( $P < .001$ ). H6b predicted that a pleasurable shopping experience leads to greater levels of satisfaction. The hypothesis is supported by the data, the path is significant with a coefficient of .40 ( $P < .001$ ). The hypothesized relationships concerning pleasure, approach and satisfaction is supported by the U.S. data. The path coefficient from pleasure to approach intention is .59 ( $P < .001$ ), and the path coefficient from pleasure to satisfaction is .65 ( $P < .001$ ). The validity of these findings is further confirmed by constructing a multi-group SEM model. The baseline model, with no equal path coefficient constraints is used as a benchmark to compare the model fit indices changes. When constrained, the path from pleasure to approach intends to be equal across American and Chinese customers. The model fit indices demonstrated no significant change from the baseline ( $\Delta\chi^2(1) = 2.92$ ,  $P = .10$ ). Similarly, the constraint of the path from pleasure to satisfaction showed no significant change either ( $\Delta\chi^2(1) = .64$ ,  $P = .42$ ). The hypothesis that satisfaction would positively affect approach intent, H7, was supported by both the U.S. and Chinese data, the path coefficients are .34 ( $P < .001$ ) and .40 ( $P < .001$ ), respectively.

## 5. Discussion

The purpose of the research was to investigate how culture's influence on responses to atmospheric cues differed between American and Chinese on-line customers. The findings from the research indicate that culture does affect the ways in which

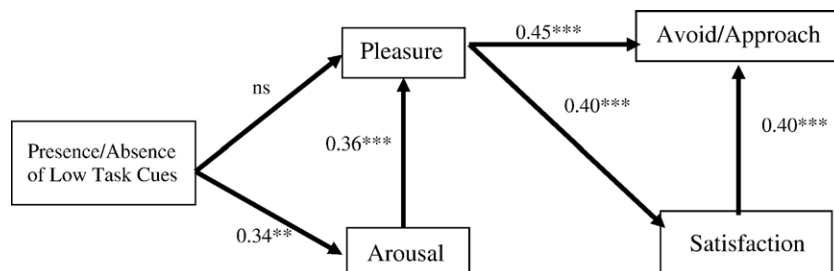


Fig. 2. Stimulus organism response model for Chinese customers in an on-line store. \*\*Significant ( $P < .05$ ). \*\*\*Significant ( $P < .001$ ).

American and Chinese on-line customers respond to atmospheric cues. The presence of low task relevant cues positively affected the level of pleasure American customer's felt while shopping, pleasure also positively affected their approach towards the on-line store, those findings are consistent with previous research (Eroglu et al., 2003; Menon and Kahn, 2002). However, in the Chinese sample, low task cues' effect on pleasure was mediated by arousal and pleasure was predictive of Chinese customers' approach behavior. Arousal as a mediating variable for pleasure in collectivistic culture has important implications for cross-cultural research. The current thinking is that induced arousal limits cognitive capacity, causing potential customers to avoid the store as a way of preventing information overload (Menon and Kennon, 2002). The theory is based upon individualistic cultural values and may not be applicable in cultures where context cues are seen as central to communication and decision-making, collectivism. Since collectivistic cultures place a greater value on causal reasoning and understanding context, their response to arousal may be seen as a positive heuristic. Future research may wish to further investigate the interaction of cultural values, arousal and emotional responses.

Low task cues were more central to the decision-making process for Chinese customers. When asked to evaluate cues, Chinese respondents rated the cues as more helpful than American customers. A central aspect of collectivism is the need to suppress any sort of judgment or evaluation, however, Chinese respondents strongly indicated that on-line store cues at the website were helpful while shopping (Kim and Hakhoe, 1994; Sussman, 2000; Yeung and Tung, 1996). Therefore, the desire or use of contextual cues must be profound given its high rating by Chinese customers. Future research may want to determine how cultural values affect the number and types of cues needed to create an optimal shopping experience.

Cultural classifications are relevant to understanding customer behavior on the Internet. The research presented here has shown that the same stimuli can generate differing emotional responses across cultures. The inter-relationships between stimuli, emotions and behaviors can change with differing cultural values. For example, the model presented here demonstrates that arousal mediates the expression of pleasure in collectivistic cultures while in individualistic cultures arousal and pleasure are distinct responses. Therefore, website design for collectivist culture may have different aims than those created for customers in an individualistic value system.

## 6. Managerial implications

Expanding Internet shopping globally requires that retailers respond to cultural differences in their website designs and not assume that "one design fits all". The research clearly shows that commonalities exist (e.g. pleasure affects satisfaction) cultural differences do affect how customers respond to on-line store atmospherics. These differences should influence how retailers use various site design elements. For example, when designing websites for an individualistic culture it is to the retailers' advantage to use low task relevant cues to balance both pleasure and arousal. These act as independent constructs.

However, in a collectivist culture the primary focus should be to increase arousal, which acts as a mediator for pleasure. Websites that deliberately make extensive use of low task cues that are striking may work best in context sensitive cultures. The web-design approach used for an individualistic culture may only be minimally effective in a collectivist culture because pleasure is not directly affected by web design, arousal mediates the relationship. On the other hand creating web sites with the intent of increasing arousal, the strategy for collectivist cultures, may repel customers from an individualistic culture because they avoid environments they find overly stimulating.

Global on-line retailers seem to be responding to cultural differences. As mentioned earlier in the paper, some researches have asserted that it is unnecessary to adapt site design to culture specifically because Amazon has become a global brand using a uniform website layout and design. However, further comparisons between American and Chinese Amazon shopping sites reveal that while the layout and design is uniform, the Chinese site has many more contextual cues. The Chinese website displays twice as many products as the American site on each web page and incorporates animation and scrolling text, the American site does not. In summary then, to paraphrase the comments of Javenpaa and Todd (1997), a well-designed customer Internet interface does not depend on the use of high technology but is merely one that supports the customer's culture and their decision-making process.

## 7. Limitations and future research

There are a number of limitations that future research should attempt to address. The first limitation is that the sample groups were university students in China and America to ensure cross-cultural equivalence. Future research should attempt to use samples that reflect a broader range of Internet customers so that the generalizability of our findings can be tested.

The second limitation was the use of hypothetical shopping sites. Every effort was made to provide a realistic experience, in-depth interviews with both American and Chinese participants were conducted to ensure that they perceived the websites as convincing and realistic. However, participants were not allowed to make any purchases. Making an actual purchase would increase the level of involvement with the shopping experience, which could, in turn, change how the cues are processed. Future research may want to explicitly address the issue by using actual on-line retailing sites.

The research presented here represents an initial effort at investigating the cultural differences of customer responses to on-line atmospheric store cues in an on-line setting. Consequently, the effects of adding or manipulating specific low task cues were not investigated. Extensions of the research could examine how customers respond to the changes in the appearance of specific low task cues as a function of their cultural orientation.

The research provides empirical support for the assertion that cultural differences affect the customer's response to on-line store atmospherics. While the types of emotions expressed by customers are common across cultures, the inter-relationships between emotions and the depth of expression vary significantly.

The study found that these differences affect the evaluation of store cues used in the site design. More research is needed to further understand the relationship between high context cultural values and responses to store atmospherics, particularly the need for arousal. Understanding how the relationship between arousal, information processing, behavior and decision-making are affected by cultural orientation merits additional study.

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