Online Shopping Environments in Fashion Shopping: An S-O-R based review

Fatema Kawaf, PhD researcher in Marketing, Strathclyde University

Tel: 07542210169

E-mail: fatema.kawaf@strath.ac.uk

Stephen Tagg, PhD, reader in Marketing at the University of Strathclyde

Tel: 01412210169

E-mail: s.k.tagg@strath.ac.uk

Correspondence address:

Fatema Kawaf

Department of Marketing

Stenhouse Building

University of Strathclyde

173 Cathedral Street

Glasgow

G4 0RQ

1

Abstract

This paper presents a critical review of online environmental psychology articles based on the stimulus-organism-response paradigm. The structure of the paper follows the sequence of the S-O-R framework i.e. starting with environmental stimuli both in traditional and online store settings. Then, consumer's inner organism theories are reviewed, followed by behavioural responses.

This endeavour also table-summarizes a selected set of most relevant articles in the specific settings of online fashion shopping environments. Content analysis of the table shows that two main themes have emerged in literature; one investigates the influence of online environmental stimuli on consumer trust and risk perception; whereas the second theme is more emotion-centred. Finally, the paper highlights the limitations of current literature and presents an agenda for future research.

Keywords Fashion Shopping, Online Consumer Behaviour, Emotion, E-servicescape, Online Environment, S-O-R

Word count: 6,455 excluding front and abstract pages and references.

Fatema Kawaf, is PhD researcher in Consumer Behaviour at Strathclyde Business School, Glasgow, UK. She received her MSc degree in Marketing from Swansea University. Fatema has worked in business schools both in Syria and the UK for a few years.

Stephen Tagg, PhD, reader in Marketing at the University of Strathclyde

2

Introduction

In spite of the rapid emergence of web-based fashion retailers (Birchall, 2010; Costa, 2010); the field is considerably under researched. Reports indicate that fashion products are the second most popular among online purchases (Birchall, 2010). However, consumers are still facing many obstacles which may hinder them from purchasing clothes online. Some of these obstacles, suggested by GSI[1] Commerce, include being unable to (a) try clothes on, (b) see their quality before buying them, (c) return items to a physical store, or (d) speak to helpful staff. In addition to poorly designed or confusing websites, inconvenient delivery schedules and having to pay for delivery (Costa, 2010)

Equally important to the abovementioned obstacles is that fashion shopping is not "simply limited to the spending of money on products; rather, shopping is also an important socializing and engaging exercise that provides opportunities to see and be with others" (Kang, 2009, p. 1). The dramatic shift of social fashion shopping to a screen-and-keyboard experience imposes high importance on the online environment in which the shopping experience occurs.

Online consumer behaviour is relatively a new topic with "an apparent paucity of articles" (Laroche, 2009b). Also, studies on fashion (Jackson & Shaw, 2009; Jacobs & de Klerk, 2010) and emotion (Wadhwa 2007; Griskevicius, Shiota et al. 2010) are scant in Consumer Research. The aim of this paper is to critically review pertinent literature on online environments and consumer emotion and cognition in fashion shopping experiences.

---

[1] GSI Commerce an e-commerce company that provides e-commerce services
http://www.gsicommerce.com/about/

Articles reviewed are mainly based on the Stimulus, Organism, Response (S-O-R), although studies of different theoretical backgrounds will be generally discussed.

This review starts by addressing the S-O-R paradigm and its application to the online environment. Thorough review of stimulus, organism, and response literature will follow; and a chosen set of most relevant articles is coded in a table, and content analysed. Finally, discussion and agenda for future research is suggested based on the analysis of current literature.

The S-O-R paradigm

Studying the effect of the environment on human behaviour has its roots in Psychology. Stimulus-response theory was the first to suggest a link between the environment and behaviour. In Marketing research, Kotler (1973) initially referred to the importance of environmental atmospherics as a marketing tool. Then, the concept of the surrounding retail environment was further developed as Bitner coined the term 'servicescape', defined as "All of the objective physical factors that can be controlled by the firm to enhance (or constrain) employee and customer actions" (Bitner, 1992, p. 65); suggesting that human beings within the service interaction are affected by the surrounding physical environment. Later definitions of servicescape included non-physical components called social factors; concluding that servicescape is comprised of ambient factors, design factors and social factors (Ezeh & Harris, 2007)

Back to the stimulus-response theory, this behaviouristic psychology was criticised by Lazarus (1998, p. xvii) arguing that "a person in this interchange is a passive creature, reacting to an environment that stimulates him or her, and that person's influence on the

4

environment is ignored". Consumers under the stimulus-response paradigm are viewed as machines which react automatically to stimuli; a lamp and a power-switch is probably the best metaphor of this perspective. While a direct influence of the environment on human beings cannot be denied, scholars suggested that one missing link in this relation is that human beings differ from machines in developing 'organismic' reactions (Mehrabian & Russell, 1974). Hence, the S-O-R suggests that when a person is exposed to external stimuli, 'inner organism changes' precede behavioural responses.

The S-O-R has dominated consumer behaviour literature and has been widely employed in marketing studies (Arora, 1982; Buckley, 1991; Donovan & Rossiter, 1994; Wakefield & Blodgett, 1996). Specifically, in traditional store environment, research has investigated the influence of the buying environment or the servicescape on customers' expectations, cognition and emotion (Aubert-Gamet, 1997; Bitner, 1990, 1992; Booms & Bitner, 1982; Reimer & Kuehn, 2005; Wakefield & Blodgett, 1996)

The shift toward the online environment

As the internet is becoming a major or complementary sales channel for many retailers, research on the online buying environment or what is referred to as e-atmosphere or e-servicescape has emerged e.g. (Birchall, 2010; Chang & Chen, 2008; Darley, Blankson, & Luethge, 2010; Demangeot & Broderick, 2007; Eroglu, Machleit, & Davis, 2001; Éthier, Hadaya, Talbot, & Cadieux, 2006; Goode & Harris, 2007; Harris & Goode, 2010; Häubl & Trifts, 2000; Koo & Ju, 2009; Lee, Kim, & Fiore, 2010; Lorenzo, Molla, & Gomez-Borja, 2008; E. E. Manganari, Siomkos, & Vrechopoulos, 2009; Mummalaneni, 2005; Salleh & Ha, 2009).

5

Several endeavours were made to customize the S-O-R model to fit the online shopping context. (Eroglu, et al., 2001) suggested that there is a need to systematically develop a comprehensive taxonomy of online atmospheric cues and to identify their major dimensions similarly to what has been done within the traditional retail store environment. Later studies started to deepen main understanding of online atmospherics and consumer responses and behaviour in the online environment, see table 1. In short, among online environment literature two main themes have emerged, one is studying the effect of the online buying environment on trust (Chang & Chen, 2008; Harris & Goode, 2010) and another studying its effect on cognition and emotion (H. Kim & Lennon, 2010; Lee, et al., 2010; Mummalaneni, 2005)

The following three sections provide a review on each of the SOR constructs, i.e. stimuli, organism and response consecutively.

Online environment stimuli

As aforementioned, servicescape comprised of ambient factors, design factors and social factors (Ezeh & Harris, 2007). Similarly, online environmental stimuli are comprised of ambient factors (Mummalaneni, 2005) and design factors (Éthier, et al., 2006; M. Kim, Kim, & Lennon, 2006; Koo & Ju, 2009). Research on social factors of the online environment, albeit scant, is growing in the form of social network sites and virtual community research (Flavián & Guinalíu, 2005; Ku, 2011). Other online environmental stimuli mainly include product presentation (visual and verbal) factors (M. Kim & Lennon, 2008), layout and functionality (Goode & Harris, 2007) and links and menus on the website (Koo & Ju, 2009).

Concerns of online atmospherics emerge as the emergent of the notion of online shopping. Unlike traditional store shopping, online shoppers face various obstacles (Birchall, 2010).

6

Hence, it is vitally important to focus on the website as the main medium of communication as well as the main distribution channel for many retailers such as Amazon, ASOS...etc.

Early research attributed the prosperity of online shopping to product types. Li and Gery (2000) argued that homogeneous products would be more successful sellers online as opposed to heterogeneous products. However, looking at recent reports, clothes are considered the second most popular among online purchases (Birchall, 2010). Although apparel shopping probably involves one of the highest levels of product risk due to the need to (a) touch fabrics, (b) try on clothes and (c) see product colours instead of screen colours in addition to all the obstacles aforementioned.

As a result, increasing attention is being paid to the unique nature of online fashion shopping. Thus, due to this unique nature of fashion, online environmental stimuli have a different focus within apparel websites.

Fashion shopping

Taking fashion to the online market is a dramatic shift in this social experience. Absence of helpful staff can also challenge this experience especially that fashion products are heterogeneous in nature. This emphasizes the importance of contemporary technologies in advancing the online shopping environment for fashion sites. Hence, the social dimension of fashion shopping might be met through technology. Kang (2009, p. 1) comments "Given contemporary advances in fashion retail systems and information technologies, social shopping experiences have become even more complex and complicated". Indeed,

contemporary technologies could mark a new era of online fashion shopping only if it meets consumer's needs and offers ways to overcome the obstacles to online shopping.

Lee, Kim, and Fiore (2010) suggested that with regards to fashion shopping, image interactivity i.e. image zooming and 360 degree rotation increase shopping enjoyment and reduce perceived risk toward the online retailer. Kim and Lennon (2010) investigated the influence of further product presentation features such as the use of a model (as opposed to flat display) and colour swapping on clothing in addition to image zooming. However, as a highly controlled experiment, the study triggers no links between the use of model and colour swapping in the particular study. That is not to say that these elements are not as important as zooming, thus further research should address them, perhaps using conjoint modelling to determine the relative importance assigned to individual attributes of the online environment.

Ha, et al. (2007) suggested, as a result of 100 apparel websites being content analysed, that most visual merchandising features of traditional offline stores are implemented in online apparel websites. According to Ha, et al. (2007), visual merchandising features comprise of (a) online path finding assistance (search engines, site maps, and categorization), (b) environment atmospherics including music, videos, display, background colours and colours surrounding the products, and (c) manner of product presentation such as product view and display method, colour and methods of presentation, detailed views, swatch and mix and match. While the endeavour showed interesting results regarding the online environment for what has already been done in literature and what is practically implemented on the different websites, the piece invited research to empirically study these features and their influence on consumers in order to show the tradeoffs between different presentation

8

methods. Because of the inability to try on apparel products before purchase, Ha, et al. (2007, p. 489) expected that "of the three factors, online product presentation will be most important in the context of online apparel stores".

Equally important is to study the social dimensions of online fashion shopping. New features implemented on different websites include links to share outfits on social media sites as well as Facebook groups and pages where customers have the ability to chat and share thoughts of the particular brand or piece of clothes of interest. Also, some websites started to implement chat with advisor facility which offers the opportunity to speak to an advisor as in offline stores. On the social dimension, Holzwarth, Janiszewski, and Neumann (2006) suggest that avatar- a pictorial representation of a human in a chat environment- can enhance the effectiveness of a Web-based sales channel. That is, having the choice to chat with an advisor may result in a more successful apparel websites.

The last point is that fashion behaviour is deeply rooted in emotional and psychological motivations (Jackson & Shaw, 2009; Kang & Park-Poaps, 2010). Following is a review of consumer emotion as an organism.

Organism (Emotion and Cognition)

"The organism is represented by cognitive and affective intermediary states and processes that mediate the relationships between the stimulus and the individual's responses". (Chang & Chen, 2008,p. 820)

Emotion

Studies in Marketing and Environmental Psychology have often mixed up emotion with mood, affect, feelings or attitudes. For instance, an emotion is considered ''a mental state of

readiness that arises from appraisals of events or of one's thoughts'' (Bagozzi, Gopinath, & Nyer, 1999, p. 184). Affect has also been defined by Éthier, et al. (2006, p. 628) as "the term for a set of specific mental processes, including feelings, moods, and emotions". However, Cohen, et al. (2008, p. 3) reserve the term "affect" to describe an internal feeling state, differentiate it from mood by illustrating "One's explicit or implicit 'liking' for some object, person, or position is viewed as an evaluative judgment rather than an internal feeling state". That is, emotion and affect arise from evaluating someone or something based on cognitive appraisal theories of emotions. Yet, going back to environmental psychology, the S-O-R paradigm suggests that feelings or emotions are the natural result of exposure to environment stimuli.

Moreover, Jones, et al. (2008, p. 4) define emotion and mood as specific examples of affect whereas emotion is more intensive, stimulus specific, and of shorter period; noting that affect is "in reference to a valence feeling state". Therefore, by suggesting valence feeling state, emotion split it into positive, negative and mixed emotions; assuming that positive emotions have specific effects on behaviour as well as negative and mixed ones (L. Watson & Spence, 2007). However, recent research shows huge differences in the effect of different emotions of the same group i.e. positive emotions (V Griskevicius, Shiota, & Neufeld, 2010 ; V Griskevicius, Shiota, & Nowlis, 2010); For instance, Griskevicius, et al. (2010) show how two positive emotions pride and contentment hugely differ in their effect on behaviour. The former enhances desirability to show in public display while the latter enhances desirability to buy product for private/home use.

Emotions measurement

10

The nature and structure of Emotion, albeit important, are not the only concern of Emotion literature. A growing body of literature is focused on the measurement of Emotions categorically such as the PANAS: positive affect negative affect scale (D. Watson, Clark, & Tellegen, 1988), dimensionally such as the (PAD) model (Mehrabian & Russell, 1974), using hierarchical clusters (Laros & Steenkamp, 2005), using a Consumption-related Emotion Set CES (Richins, 1997), studying each emotion individually such as enjoyment (Lin, Gregor, & Ewing, 2008) or using facial expressions (Ekman, 1992).

To measure affective states of organism, Russell and Mehrabian (1977) introduced the PAD: Pleasure, Arousal, Dominance model of emotions. According to the PAD, emotions can be measured dimensionally on the basis of pleasure/displeasure, arousal/nonarousal, dominance/ submissiveness resulting in either positive or negative emotions. The PAD model of dimentional emotion is highly studied in consumer reseach, it was applied in retail setting by Donovan and Rossiter (1994). However, most recent studies have dropped the 'Dominance' dimension in online retail contexts (Ballantine & Fortin, 2009; Mummalaneni, 2005) . By grouping emotions into positive/negative types, deep meanings of each unique emotion is lost (V Griskevicius, et al., 2010 a; V. Griskevicius, Shiota, & Neufeld, 2010b). It is also questionable to employ the PAD under cognitive appraisal theories of emotions. As commented by (Desmet, 2010) on the work of (Massara, Liu, & Melara, 2009).

From a constructivist view of emotions (Mandler, 1990), Lazarus' cognitive appraisal theory "offers a more in-depth way to explain the subtle nuances of emotion" (L. Watson & Spence, 2007, p. 490). Lazarus' theory proposes that when exposed to stimuli, a person first evaluates the situation hence; a cognitive appraisal is made (either consciously or

subconsciously). Then, based on the result of that appraisal, an emotion emerges and a response follows. Watson and Spence (2007) referred to the importance of cognitive appraisal theory of emotion in predicting what emotions should be elicited in a particular interaction and how the evoked emotions influence behaviour. Lazarus (1991) state that within the appraisal theory, emotions are associated with a person's goals and motivations and is important in understanding coping strategies (Lazarus, 1993; Lazarus & Launier, 1978). Applying this theory in an S-O-R paradigm offers the opportunity of a non-mechanistic view of human being, hence, making the 'organism, response' in the S-O-R model more complicated than the automatic lamp effect of the positivist point of view. The cognitive appraisal theory of emotion has been very popular in consumer behaviour research and highly recommended by (Bagozzi, et al., 1999; L. Watson & Spence, 2007). Particularly, in online shopping behaviour, cognitive appraisal theory has been widely applied (Éthier, et al., 2006; Jones, et al., 2008; L. Watson & Spence, 2007). Éthier, et al. (2006) argue that this theory is appropriate for online shopping research, where information processing is an important aspect and because it has predictive capability and can be used to develop research models.

Cognition

Some studies addressed an interrelationship between cognition and emotion by highlighting the importance of studying the influence of emotions on both cognition and behaviour (V Griskevicius, et al., 2010 ; V Griskevicius, et al., 2010; López & Ruiz, 2010). Even traditionally, research had illustrated impressive and consistent results on the influence of mood on cognition (J. Russell & Snodgrass, 1987).

12

In other cases, cognition is perceived as the dominant factor that moderate emotions. Demangeot and Broderick (2007, p. 880) comment "While affect appears to play a role, online shopping environments are perceived in a more cognitive manner than offline environments. This could be the case because of the higher cognitive effort necessary for a computer-mediated activity which is less intuitive than the activity of offline shopping".

The last stream of research suggests that stimuli have no direct effect on emotion. Instead, a customer evaluates stimuli first and then specific emotions emerge (Desmet, 2009; Massara, et al., 2009; Smith & Ellsworth, 1985).

Next is an overview of the responsive consequences of environmental stimuli effects and consumer's emotion and cognition.

Response

According to the S-O-R, following the exposure to stimuli and the development of consumer inner organism, a responsive behaviour emerges. Various responses are addressed in the literature. One is the approach-avoidance theory; customers react to the servicescape by displaying one of two diametrically opposed forms of behaviour – approach or avoidance (Aubert-Gamet, 1997; Eroglu, et al., 2001; Ezeh & Harris, 2007). Approach behaviour comprises all the positive behaviours of willing to stay, explore and purchase; whereas avoidance is the opposite. Nonetheless, the proposed research places particular importance on 'complete/incomplete purchase' as a form of behaviour.

Another highly popular responsive behaviour the literature addresses is behavioural intention. Behavioural intention comprises of the intent to purchase(Ballantine & Fortin,

2009; H. Kim & Lennon, 2010; Koo & Ju, 2009), repurchase, spread positive word of mouth WOM and become loyal (Jayawardhena & Wright, 2009) to the online retailer; in addition to switching and complaining behaviour. Attitude toward the website is another responsive behaviour studied by many researchers such as (Lee, et al., 2010).

Analysis of literature

To steer the subsequent discussion, table 1 lists the most relevant articles for the purpose of this review under the S-O-R paradigm in an online shopping context. A database of 250 articles was collected over a 12-month period of time. Keywords used for the gathering of these papers include: online environment, shopping atmosphere, web atmospherics, servicescape, online servicescape, web design, emotion, cognition, stimulus-organism-response, S-O-R, PAD, fashion shopping, clothes, apparel website, avatar and online consumer behaviour. For the purpose of this review, a limited number of articles were chosen to be coded and analysed. Criteria for articles selection are as follow, (a) articles employing the S-O-R or a modified S-O-R model, (b) articles studying the buying environment or any of its features as the independent variables, (c) articles must be studying (a and b) in online shopping context and not in a traditional purchase settings.

The sum of 25 articles which met the criteria abovementioned is chosen for the analysis. Alike the table presented in Darley, et al. (2010), the selected articles were coded according to the following dimension: research method, sample size, sample source, area of field work, independent variable, moderator and mediator, dependent variable and findings.

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Ballantine and Fortin (2009), IJIMA	Web-based experiment	360	Web users	Simulated site for digital cameras	Interactivity, amount of information	Emotions PA P: Pleasure A: arousal	The likelihood of purchase	Higher interactivity leads to pleased shoppers. Pleased and aroused shoppers might have a higher likelihood of purchase
Chang and Chen (2008), OIR	Web-based survey	628	No specification	No specification	Online environment cues: website quality, brand	Trust and perceived risk	Purchase intention	Brand is a more important cue than web quality in influencing purchase intention. However, intention, as well as trust and perceived risk, is influenced by website quality and brand though.
Chen, et al. (2009), JBR	Experiment	1567	Students	computer, communication, electronics, cosmetics, furniture, books, DVD, luxury items, and travel	Technology, shopping and product factors	_	Online consumer purchase intention	Shoppers are categorized according to their preferences and computer expertise. E-tailers targeting new customers, possibly who lack computer expertise, must take this into account when designing websites.
Childers, et al. (2001), JR	Survey	274+ 266	Students + Grocery shoppers	Online book and food shopping	Navigation, convenience, sub-experience	Usefulness, ease of use, enjoyment	Attitude	Enjoyment is a strong predictor of attitudes in hedonic and utilitarian shopping settings, yet, it is much stronger in hedonic ones. In contrast, ease of use and usefulness are stronger predictors than enjoyment in utilitarian shopping.

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Eroglu, et al. (2001), JBR	Conceptual model	_	_	Online retailing	Online environment cues: High/ low task	Involvement, response to atmospheric, affect, cognition	Shopping outcome: approach/ avoidance	A need to systematically develop a comprehensive taxonomy of online atmospheric cues and to identify their major dimensions as in traditional retail store environment
Éthier, et al. (2006), I&M	Survey	215	Business school students	CDs and DVDs websites (Amazon, renaud-bray, Archambault, futureshop)	Technical and visual aspects, navigation, search, contact with the site	Cognitive appraisal	Emotions: liking, joy, pride, dislike, frustration, and fear	Shoppers made positive cognitive appraisals for higher web quality and that had influenced their emotions (liking, joy, pride, dislike, and frustration) but fear! Although, liking and joy are felt more intensely.
Ha, et al. (2007), JFMM	Websites content analysis	100	US and Korean apparel websites	Online apparel retailing	VMD: Visual merchandising elements of the apparel website	_	_	Most VMD features of offline stores have been implemented online, it can be studied under the S-O-R VMD comprises of online path finding model (search engines, sitemaps,), environment and product presentation.
Harris and Goode (2010), JSM	Survey	257	Dataset from a brokerage agency	Online retailing websites chosen by respondents	Aesthetic appeal, layout, functionality, financial security	Trust in the website	Purchase intention	Among online servicescape factors, aesthetic appeal of the website is arguably the most influential. Shoppers purchase intention is strongly influenced by website trustworthiness.

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Häubl and Trifts (2000), MS	Experiment	249	Business school students	Simulated websites for backpacking tents, compact stereo systems	Recommendation agent, comparison matrix	Product category, order position, knowledge, or interest	Amount of information, consideration sets, decision quality	Participants who viewed websites containing a recommendation agent and a comparison matrix made better quality and efficient purchase decisions.
Holzwarth, et al. (2006), JM	Experiment	996	Consumers and online shoppers	Simulated footwear site	Avatar presence, Avatar type (attractive, expert)	Entertaining informative site, likeability and credibility of avatars	Satisfaction attitude (retailer/ product), purchase intention	Using avatar to present product information leads to satisfaction with the retailer, a positive attitude toward the product and a greater purchase intention. Attractive avatars are better than expert ones when involvement is not high.
Jayawardhena and Wright (2009), EJM	Email survey	626	UK consumer Panel	No specification.	Convenience, attributes of the web site, merchandising, involvement	Emotion: shopping excitement	Intent to return and word of mouth	All the independent variables resulted in excited consumers and those had higher intention to return and to spread positive WOM.
Jeong, et al. (2009), IR	Experiment	196	Female students	Female fashion website anthropologie.com	Product presentation features	Entertaining, educational, escapist, and aesthetic experiences and emotion PA	Website patronage intention	Entertaining and aesthetically appealing websites makes shoppers pleased and aroused. Pleasure, arousal, entertainment, and aesthetic experiences had direct effects on web site patronage intention

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Kim and Lennon (2008), P&M	Experiment	145+ 150	Female students	Online apparel shopping	Visual and verbal information	Information processing, affective and cognitive attitudes	Purchase intention	Shopper attitude is influenced by visual and verbal information about the product of interest. However, verbal information seem to have the main influence of shopper intention
Kim and Lennon (2010), JFMM	Experiment	230	Female students	Simulated fashion website	The use of a model, colour swapping on clothing, and image enlargement	Emotion PA Cognition: perceived information, perceived risk	Purchase intention	Shoppers who were able to enlarge product images felt more pleased. Additionally, those who were pleased and aroused perceived less risk and had higher intention to purchase
Kim et al. (2009), DM	Experiment	272	Female students	Simulated fashion website	Product presentation Music	Emotional states, attitude toward the site	Purchase intention	Presenting garments on a virtual model enhances consumers' emotional responses. The latter is positively related to cognition. However, music has no effect on shopping experiences.
Koo and Ju (2009), CiHB	Questionnaire	356	South Korean Experienced online shoppers	No specification	Graphics, colours, links and menus	Perceived curiosity	Purchase intention	Colours, graphics and links on a website influenced shoppers' emotions, yet, shoppers with higher perceived curiosity felt higher intense emotions.

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Lee, et al. (2010), CTRJ	Experiment	206	College students	Online fashion shopping	Image interactivity technology, Experimenting with appearance	Enjoyment, perceived risk	Attitude toward the online retailer	Image interactivity technology positively influenced shoppers' enjoyment and lower risk perception. Also, enjoyment and risk directly affected users' attitudes toward the e-retailer.
Manganari, et al. (2011), IR	Experiment	241	Business school students	A fictitious air travel website	Virtual layout perceived ease	Pleasure, attitude, atmospheric responsiveness	Satisfaction, trust	Perceived virtual store layout's ease of use influences consumers' internal states (i.e., pleasure and attitude) which in turn influence consumers' online response.
Mummalaneni (2005), JBR	Survey	250	Consumer behaviour students	Apparel and footwear websites	Online store environment (design and ambience factors)	Emotional states PA	Shopping outcome and behaviour	E-atmospherics make shoppers pleased and aroused. They influence satisfaction, loyalty and number of items purchased; but, they do not affect time or money spent by users
Park, et al. (2005), P&M	Experiment	244	Female students	Simulated apparel websites	Product presentation	Mood, perceived risk	Purchase intention	Rotating product images influence shopper positive mood and lower their perceived risk. Positive mood and low risk perception, of course, lead to higher purchase intention

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Park, et al. (2008), JCB	Experiment	234	College students	Simulated apparel websites	Product rotation	Mood, perceived information, attitude	Purchase intention	Product rotation elevates the amount of information perceived and mood, which then increases attitude leading to increases in purchase intention.
Sautter, et al. (2004), JECR	Conceptual	_	_	Online retailing	Environmental cues: virtual store, operator environment	Affect, cognition, telepresence. Involvement, atmospheric responsiveness, motivation	Shopping outcome: approach/ avoidance	This research posits the concept of dual environments: the online environment and the shopper environment in which the human-computer interaction is taking place.
Wang, et al. (2010), JBR	Experiment	320	Us online shoppers	Simulated e-tailing sites	Web aesthetic formality, aesthetic appeal	Perceived e-service quality, satisfaction. Purchase task oriented, free	Behaviour: purchase, repurchase, loyalty, complaints, service switch	Shoppers with or without specific purchase tasks are more satisfied with aesthetically appealing website. Similarly, both shoppers perceive higher online service quality for aesthetically formal sites.

Continued...

Table 1: Summary review of S-O-R based online shopping environment articles

Author	Method	Sample size	Sample Source	Area of Field Work	Independent variables	Moderator/ mediator	Dependent variable	Findings
Williams and Dargel (2004), MI&P	Conceptual	_	_	Online retailing	Ambient conditions, function, signs, symbols, artefacts	Emotion PA, cognition beliefs,	Approach, avoidance	There is a need to understand site's target market and design according to the expectations of the target shoppers; in addition to site vividness and interactivity.
Yun and Good (2007), MSQ	Survey	203	Students	Online retailing	E-tail store image	E-patronage intention	E-loyalty behaviours	Websites with favourable e-store image (e-merchandise, e-service, e-atmosphere) are more likely to win shoppers patronage and loyalty.

Table 1 shows that research on online environmental psychology has seen light only recently, earliest articles were published in 2000 and has been growing to date. A content analysis of the table shows that the most common research method employed in such articles is experiment accounting for 52% of the articles. Whereas, survey is used in 32% of them and the rest are conceptual ones. This is probably because most of the S-O-R based articles attempt to spot the slight differences in environmental stimuli on a given website. That is, a need to control the setting is hardly available in real life settings and in most cases researchers require to use simulated websites rather than real-life ones. This is especially true for online fashion shopping research as the table shows that over 77% of online apparel research used experiments and that most of them used simulated websites.

Looking at the independent variables, it is apparent that earlier attempts at conceptualising online stimuli started with generic terms. For instance, Eroglu, et al. (2001) defined environment stimuli as high and low task-relevant environmental cues, the former is verbal content related to the shopping goals including price, terms of sale, delivery, and return policies...etc. Whereas the latter refer to content which is unrelated to shopping goals such as colours, borders, fonts, animation, music and sounds, and decorative graphics. While this initial attempt provided a very important model of S-O-R in online context, it is clear that environmental stimuli were at a very generic level. Later on, literature started to focus on specific online stimuli features such as cyberspace: ambient conditions, function, signs, symbols, artefacts (Williams & Dargel, 2004), e-store image including e-merchandise, e-service, e-atmosphere (Yun & Good, 2007), Online store environment: design and ambience factors (Mummalaneni, 2005).

By shedding the light on online fashion literature, it is noticeable that early research started to focus on specific fashion related stimuli such as product presentation features (Park, et al., 2005). Nearly most fashion related articles latch on product presentation features as the main issue of concern. It is apparently expected as the main obstacle of online fashion shopping is the inability to touch or try on products before purchase, which encounters higher product risks levels. Hence, the researchers' focus attention is to enhance product presentation visually and verbally.

Looking at moderator/mediator column, most of the articles included both emotion and cognition as organisms which mean playing a mediator role in the S-O-R model. Most literature measured emotions using the PAD model. Nevertheless, the D: dominance item was dropped from the model in all of these studies. Hence, emotions were interpreted into pleasure and arousal dimensions. Only few papers attempted to study specific types of emotion such as enjoyment (Childers, et al., 2001; Lee, et al., 2010) and shopping excitement (Jayawardhena & Wright, 2009) or a group of specific emotions (Éthier, et al., 2006).

The dependent variable in most cases is behavioural intention including purchase, repurchase, loyalty, complaints, switching behaviour. Mainly, purchase intention is the most popular element studied as a response to exposure to online stimuli. Also, a fair amount of research used the approach/avoidance theory as a behaviouristic response to environmental stimuli.

Looking at the findings of these articles, it could be inferred that most stimuli have contradicting effects on organism and response. One clear effect is that pleasure is affected

23

by higher levels of interactivity and better web stimuli such as product image enlargement and rotation (H. Kim & Lennon, 2010). Whereas, the arousal dimension of emotion has been questioned several times and have contradicting effects.

As highlighted earlier in this review, studies of emotions in consumer behaviour should consider studying specific types emotions rather than a group or a dimension of them (V Griskevicius, et al., 2010 ; V Griskevicius, et al., 2010).

Discussion

Placing table 1 under spotlight, two main themes can be indentified from the coded articles. The first theme investigates the influential role of online atmospherics on trust and risk perception. Articles within this theme are probably more cognition-centred. They argue that environmental stimuli mainly influence cognitive processes such as risk perception and website trustworthiness, suggesting that high quality websites are more trusted than lower quality ones (Chang & Chen, 2008). Specifically, aesthetically appealing websites (Harris & Goode, 2010) and well designed virtual store's layout lower shoppers' perceived risk and enhance their intention to purchase (E. MANGANARI, et al., 2011).

However, due to higher risk levels associated with purchasing garments online, it is apparent that fashion research is focused on product presentation stimuli as the main influential factor on trust and risk perception. For instance, image interactivity techniques of displayed products (Lee, et al., 2010) and 360-degree rotation of product images (Park, et al., 2005) significantly lower risk perception.

It is noteworthy that risk perception and trust are one of the most important variables studied in online consumer research. Gundlach & Murphy (1993) comment that building

24

consumer trust is essential for the success of any interaction or exchange. Thus, with the employment of web 2.0 techniques as a sales channel, it is only natural that risk perceived by customers increases dramatically than in traditional sales channels. Therefore, research is indeed needed to evaluate online risk perception.

The second theme uses emotion as the main 'organismic' construct that results from exposure to environmental stimuli. In general, most articles under this theme have argued that pleased and aroused consumers are more likely to purchase or to have one or more types of the positive behavioural intention aforementioned. Environmental stimuli, in most articles, affect consumers' pleasure. Nevertheless, the arousal dimension has not always been consistent with high quality environmental stimuli. For instance, table 1 shows that higher levels of interactivity make shoppers pleased but not aroused (Ballantine & Fortin, 2009). Similarly on the fashion dimension, higher levels of image interactivity, rotation and zooming lead to more pleased shoppers (H. Kim & Lennon, 2010; J. H. Kim, et al., 2009). Yet, as suggested previously, it is very useful and more meaningful to study the effect of specific types of emotions on specific behavioural responses such as the influence of shopping excitement on positive word of mouth (Jayawardhena & Wright, 2009).

Additionally, it could be inferred that emotion has been interchangeably used with mood, affect, feelings and attitude. However, as previously discussed, each of these concepts is slightly or hugely different from the others (Cohen, et al., 2008; Jones, et al., 2008).

Limitations and suggestions for future research

The rationale for presenting an S-O-R based literature review is multifaceted. First, the paradigm has been widely employed and well accepted in consumer behaviour studies e.g.

25

(Arora, 1982; Buckley, 1991; Donovan & Rossiter, 1994; Wakefield & Blodgett, 1996). While S-O-R research in Marketing has been initially forwarded by Mehrabian and Russell (1974), there have been various endeavours to modify and criticise the model such as (Desmet, 2009; Massara, et al., 2009). Moreover, research on online shopping environments has attempted modifying the S-O-R to fit this context; It was initially attempted by Eroglu, et al. (2001). Then, It was further modified by Sautter, et al. (2004) suggesting to incorporate the effect of dual environments in this context; the website environment and the environment in which the human-computer interaction takes place.

Moreover, the S-O-R falls short of providing a comprehensive view of the effect of the human body on the environment (Lazarus, 1998) and on the shopping experience itself. Although, it explains consumer behaviour better than the stimulus-response psychology, it is still unable to explain how consumer's emotion may influence the way in which the interaction occurs. Also, research has recently suggested the importance of incorporating emotional responses to initial website exposure and identifying their relationships with other variables in a model of online consumer behaviour, taking into account product intangibility factors (Laroche, 2009a).

Based on the criticism aforementioned, this review calls for more qualitative research to conceptualize a comprehensive framework of online S-O-R model. The rational for this suggestion is to deepen our understanding of the dynamics of the S-O-R paradigm especially in relation to the shoppers' inner 'organism'. Also, conceptualizations of the constructs and the components of each of the online S-O-R are needed to avoid contradicting views of what online stimuli are.

This leads to the third reason for presenting this review, in fact, environmental stimuli are a main topic of concern for web designers and online shopping strategists especially in the fashion industry, yet research seems to be falling short of catching the technological wave of the fashion e-tail industry. Apparently, most research has mainly focused on testing what is believed to be environmental stimuli rather than exploring what these stimuli might be or might mean from a consumer perspective.

Online stimuli haven't been sufficiently conceptualized and more research to further develop the nature and role of web atmospherics (Laroche, 2009b). Researchers use different terms to refer to online stimuli such as website quality, web atmospherics, e-atmosphere, online servicescape and online buying environments. However, more theoretical grounds should be established to define all or each of these terms and whether they are different.

As for fashion shopping literature, research has already started to focus on stimuli that are important due to the nature of apparel products. Examples of such stimuli include product presentation stimuli as images zooming and 3D rotation (H. Kim & Lennon, 2010), video (catwalk) and size guides (picture, table or text). Practically, the industry has been trying more advanced stimuli such as virtual fitting rooms, and virtual shopping malls. However, none of these have been remarkably mentioned in literature. Equally important is the social dimension of the online shopping experience; increasing attention is being paid to the significance of social network sites, virtual communities (Chan & Li, 2009; Dholakia, Bagozzi, & Pearo, 2004; Flavián & Guinalíu, 2005) and customer reviews forum (J. Kim & Gupta, 2011). Although, the social aspect of fashion shopping has been argued before (Kang, 2009)

27

only few studies incorporated social stimuli of the online environment as main constructs in the S-O-R framework.

Greater attention should be placed on social environmental stimuli; such as communication with human beings online whether those human beings are friends and relatives such as in social network sites, consumers such as on websites' blogs, Facebook pages...etc, or with a sales advisor in a private chat boxes available at some fashion websites such as 'Morpheus Boutique'.

The rational for suggesting the importance of the social dimension of online fashion shopping is due to (a) the nature of fashion products, (b) the need to deepen our understanding of online fashion shopper behaviour. Future research should address these issues and understand whether consumers go online to buy clothes, get inspiration, check out recent trends and celebrities under spotlight, or review outfit suggestions. Each of these drivers to go online has its own nature and effect on policies and strategies of online fashion retailers.

To sum up, this endeavour presented a review on pertinent literature on online environmental stimuli in fashion e-tailing based on the stimulus-organism-response framework. It was concluded that more research is needed for the conceptualization of the online environmental stimuli components. Also, a call for more qualitative research is made toward building a more dynamic rather than linear online S-O-R model. Additionally, the review suggested that more research should be carried out to deepen our understanding of emotional responses to environmental stimuli. Moreover, specialised research on online

fashion shopping is invited to firstly establish the grounds of the field and secondly catch up with the speed of the technologies adopted in online fashion shopping.

Finally, it is worth noting that this review is based on the S-O-R framework in online fashion shopping context. Therefore, caution must be taken when applying the findings of this review in an offline context or in an industry of different product nature.

References

Arora, R. (1982). Validation of an SOR model for situation, enduring, and response components of involvement. *Journal of Marketing Research, 19*(4), 505-516.

Aubert-Gamet, V. (1997). Twisting servicescapes: diversion of the physical environment in a re-appropriation process. *International Journal of Service Industry Management, 8*(1), 26-41.

Bagozzi, R., Gopinath, M., & Nyer, P. (1999). The role of emotions in marketing. *Journal of the Academy of Marketing Science, 27*(2), 184-206.

Ballantine, P., & Fortin, D. (2009). The effects of interactivity and product information on consumers' emotional responses to an online retail setting. *International Journal of Internet Marketing and Advertising, 5*(4), 260-271.

Birchall, J. (2010). Stores tackle physical and virtual realities. *FT online*.

Bitner, M. (1990). Evaluating service encounters: the effects of physical surroundings and employee responses. *The Journal of Marketing, 54*(2), 69-82.

Bitner, M. (1992). Servicescapes: the impact of physical surroundings on customers and employees. *The Journal of Marketing, 56*(2), 57-71.

Booms, B., & Bitner, M. (1982). Marketing services by managing the environment. *Cornell Hotel and Restaurant Administration Quarterly, 23*(1), 35.

Buckley, P. G. (1991). An SOR model of the purchase of an item in a store. *Advances in Consumer Research, 18*(1), 491-500.

Chan, K. W., & Li, S. Y. (2009). Understanding consumer-to-consumer interactions in virtual communities: The salience of reciprocity. *Journal of Business Research, 63*(9-10), 1033-1040.

Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention Trust and perceived risk as a mediator. [Article]. *Online Information Review, 32*(6), 818-841.

Chen, Y.-H., Hsu, I. C., & Lin, C.-C. (2009). Website attributes that increase consumer purchase intention: A conjoint analysis. *Journal of Business Research, 63*(9-10), 1007-1014.

Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing, 77*(4), 511-535.

Cohen, J., Pham, M., & Andrade, E. (2008). The nature and role of affect in consumer behavior. *Handbook of consumer psychology*, 297–348.

Costa, M. (2010, 14 October). Online fashion is extension of the high street. *Marketing Week,* pp. 24-26.

Darley, W. K., Blankson, C., & Luethge, D. J. (2010). Toward an integrated framework for online consumer behavior and decision making process: a review. *Psychology and Marketing, 27*(2), 94-116.

Demangeot, C., & Broderick, A. (2007). Conceptualising consumer behaviour in online shopping environments. *International Journal of Retail & Distribution Management, 35*(11), 878-894.

Desmet, P. (2009). Are emotions consequences of affective expectations? A commentary essay. *Journal of Business Research*.

Desmet, P. (2010). Are emotions consequences of affective expectations? A commentary essay. *Journal of Business Research, 63*(8), 903-904.

Dholakia, U. M., Bagozzi, R. P., & Pearo, L. K. (2004). A social influence model of consumer participation in network- and small-group-based virtual communities. *International Journal of Research in Marketing, 21*(3), 241-263.

Donovan, R. J., & Rossiter, J. R. (1994). Store atmosphere and purchasing behavior. *Journal of Retailing, 70*(3), 283-294.

Ekman, P. (1992). Facial expressions of emotion: New findings, new questions. *Psychological science, 3*(1), 34.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric qualities of online retailing: A conceptual model and implications. *Journal of Business Research, 54*(2), 177-184.

Éthier, J., Hadaya, P., Talbot, J., & Cadieux, J. (2006). B2C web site quality and emotions during online shopping episodes: an empirical study *Information & Management, 43*(5), 627-639.

Ezeh, C., & Harris, L. C. (2007). Servicescape research: a review and a research agenda. *The Marketing Review, 7*(1), 59-78.

Flavián, C., & Guinalíu, M. (2005). The influence of virtual communities on distribution strategies in the internet. *International Journal of Retail & Distribution Management, 33*(6), 405-425.

Goode, M. M. H., & Harris, L. C. (2007). Online behavioural intentions: an empirical investigation of antecedents and moderators. *European Journal of Marketing, 41*(5/6), 512-536.

Griskevicius, V., Shiota, M., & Neufeld, S. (2010). Influence of Different Positive Emotions on Persuasion Processing: A Functional Evolutionary Approach. *Emotion, 10*(2), 190-206.

Griskevicius, V., Shiota, M. N., & Neufeld, S. L. (2010). Influence of different positive emotions on persuasion processing: A functional evolutionary approach. *Emotion, 10*(2), 190.

Griskevicius, V., Shiota, M. N., & Nowlis, S. M. (2010). The Many Shades of Rose-Colored Glasses: An Evolutionary Approach to the Influence of Different Positive Emotions. *Journal of Consumer Research, 37*(2), 238-250.

Gundlach, G. T., & Murphy, P. E. (1993). Ethical and legal foundations of relational marketing exchanges. *The Journal of Marketing*, 35-46.

Ha, Y., Kwon, W. S., & Lennon, S. J. (2007). Online visual merchandising (VMD) of apparel web sites. *Journal of Fashion Marketing and Management, 11*(4), 477-493.

Harris, L. C., & Goode, M. M. H. (2010). Online servicescapes, trust, and purchase intentions. *Journal of Services Marketing, 24*(3), 230-243.

Häubl, G., & Trifts, V. (2000). Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids. *Marketing Science, 19*(1), 4-21.

Holzwarth, M., Janiszewski, C., & Neumann, M. (2006). The influence of avatars on online consumer shopping behavior. *Journal of Marketing, 70*(4), 19.

Jackson, T., & Shaw, D. (2009). *Mastering fashion marketing*: Palgrave Macmillan.

Jacobs, B., & de Klerk, H. M. (2010). Online apparel shopping behaviour of South African professional women: the role of consumers' apparel shopping scripts. [Article]. *International Journal of Consumer Studies, 34*(3), 255-264.

Jayawardhena, C., & Wright, L. T. (2009). An empirical investigation into e-shopping excitement: antecedents and effects. *European Journal of Marketing, 43*(9/10), 1171-1187.

Jeong, S. W., Fiore, A. M., Niehm, L. S., & Lorenz, F. O. (2009). The role of experiential value in online shopping: The impacts of product presentation on consumer responses towards an apparel web site. *Internet Research, 19*(1), 105-124.

Jones, M., Spence, M., & Vallaster, C. (2008). Creating emotions via B2C websites. *Business Horizons, 51*(5), 419-428.

Kang, J. (2009). *Social Shopping for Fashion.*

Kang, J., & Park-Poaps, H. (2010). Hedonic and utilitarian shopping motivations of fashion leadership. *Management, 14*(2), 312-328.

Kim, H., & Lennon, S. J. (2010). E-atmosphere, emotional, cognitive, and behavioral responses. *Journal of Fashion Marketing and Management, 14*(3), 412-428.

Kim, J., & Gupta, P. (2011). Emotional expressions in online user reviews: How they influence consumers' product evaluations. *Journal of Business Research, In Press, Corrected Proof*.

Kim, J. H., Kim, M., & Lennon, S. J. (2009). Effects of web site atmospherics on consumer responses: music and product presentation. *Direct Marketing: An International Journal, 3*(1), 4-19.

Kim, M., Kim, J. H., & Lennon, S. J. (2006). Online service attributes available on apparel retail web sites: an ES-QUAL approach. *Managing Service Quality, 16*(1), 51-77.

Kim, M., & Lennon, S. (2008). The effects of visual and verbal information on attitudes and purchase intentions in internet shopping. *Psychology and Marketing, 25*(2), 146-178.

Koo, D., & Ju, S. (2009). The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intention. *Computers in Human Behavior*.

Kotler, P. (1973). Atmospherics as a marketing tool. *Journal of Retailing, 49*(4), 48-64.

Ku, E. C. S. (2011). Recommendations from a virtual community as a catalytic agent of travel decisions. *Internet Research, 21*(3), 282-303.

Laroche, M. (2009a). Advances in internet consumer behavior and marketing strategy: Introduction to the special issue. *Journal of Business Research, 63*(9-10), 1015-1017.

Laroche, M. (2009b). New developments in modeling Internet consumer behavior: Introduction to the special issue. *Journal of Business Research, In Press, Corrected Proof*.

Laros, F., & Steenkamp, J. (2005). Emotions in consumer behavior: A hierarchical approach. *Journal of Business Research, 58*(10), 1437-1445.

Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist, 46*(8), 819.

Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. *Fifty Years of the Research and Theory of RS Lazarus: An Analysis of Historical and Perennial Issues*, 366-388.

Lazarus, R. S. (1998). *Fifty years of research and theory by RS Lazarus: an analysis of historical and perennial issues*: Lawrence Erlbaum.

Lazarus, R. S., & Launier, R. (1978). Stress-related transactions between person and environment. *Perspectives in interactional psychology, 287*, 327.

Lee, H., Kim, J., & Fiore, A. (2010). Affective and Cognitive Online Shopping Experience: Effects of Image Interactivity Technology and Experimenting With Appearance. *Clothing and Textiles Research Journal, 28*(2), 140.

Li, Z. G., & Gery, N. (2000). E-tailing--For all products? *Business Horizons, 43*(6), 49-54.

Lin, A., Gregor, S., & Ewing, M. (2008). Developing a scale to measure the enjoyment of Web experiences. *Journal of Interactive Marketing, 22*(4), 40-57.

López, I., & Ruiz, S. Explaining website effectiveness: The hedonic-utilitarian dual mediation hypothesis. [doi: DOI: 10.1016/j.elerap.2010.04.003]. *Electronic Commerce Research and Applications, In Press, Corrected Proof*.

López, I., & Ruiz, S. (2010). Explaining website effectiveness: The hedonic-utilitarian dual mediation hypothesis. *Electronic Commerce Research and Applications, In Press, Corrected Proof*.

Lorenzo, C., Molla, A., & Gomez-Borja, A. (2008). *Web Navigation Layout: An Experimental Application on E-consumer's Internal States*. Orlando: Int Inst Informatics & Systemics.

Mandler, G. (1990). A constructivist theory of emotion. *Psychological and biological approaches to emotion*, 21-43.

MANGANARI, E., SIOMKOS, G., RIGOPOULOU, I., & VRECHOPOULOS, A. (2011). Virtual Store Layout Effects on Consumer Behaviour: Applying an Environmental Psychology Approach in the Online Travel Industry. *Internet Research, 21*(3), 7-7.

Manganari, E. E., Siomkos, G. J., & Vrechopoulos, A. P. (2009). Store atmosphere in web retailing. [Article]. *European Journal of Marketing, 43*(9-10), 1140-1153.

Massara, F., Liu, S., & Melara, R. (2009). Adapting to a retail environment: Modeling consumer-environment interactions. *Journal of Business Research*.

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*: the MIT Press.

Mummalaneni, V. (2005). An empirical investigation of web site characteristics, consumer emotional states and on-line shopping behaviors. *Journal of Business Research, 58*(4), 526-532.

Park, J., Lennon, S. J., & Stoel, L. (2005). On line product presentation: Effects on mood, perceived risk, and purchase intention. *Psychology and Marketing, 22*(9), 695-719.

Park, J., Stoel, L., & Lennon, S. J. (2008). Cognitive, affective and conative responses to visual simulation: The effects of rotation in online product presentation. *Journal of Consumer Behaviour, 7*(1), 72-87.

Reimer, A., & Kuehn, R. (2005). The impact of servicescape on quality perception. *European Journal of Marketing, 39*(7/8), 785-808.

Richins, M. (1997). Measuring emotions in the consumption experience. *Journal of Consumer Research, 24*(2), 127-146.

Russell, J., & Snodgrass, J. (1987). Emotion and the environment. *Handbook of environmental psychology, 1*, 245–280.

Russell, J. A., & Mehrabian, A. (1977). Evidence for a three-factor theory of emotions. *Journal of Research in Personality, 11*(3), 273-294.

Salleh, N. A. M., & Ha, N. C. (2009). *An Empirical Investigation of the Web Experiences Factors Affecting Consumer On-line Purchasing Behaviour*. Norristown: Int Business Information Management Assoc-Ibima.

Sautter, P., Hyman, M. R., & Lukosius, V. (2004). E-tail atmospherics: a critique of the literature and model extension. *Journal of Electronic commerce research, 5*(1), 14-24.

Smith, C., & Ellsworth, P. (1985). Patterns of cognitive appraisal in emotion. *Journal of personality and social psychology, 48*(4), 813-838.

Wakefield, K., & Blodgett, J. (1996). The effect of the servicescape on customers' behavioral intentions in leisure service settings. *Journal of Services Marketing, 10*(6), 45-61.

Wang, Y. J., Hernandez, M. D., & Minor, M. S. (2010). Web aesthetics effects on perceived online service quality and satisfaction in an e-tail environment: The moderating role of purchase task. *Journal of Business Research, 63*(9-10), 935-942.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of personality and social psychology, 54*(6), 1063.

Watson, L., & Spence, M. (2007). Causes and consequences of emotions on consumer behaviour. *European Journal of Marketing, 41*(5/6), 487-511.

Williams, R., & Dargel, M. (2004). From servicescape to "cyberscape". *Marketing Intelligence & Planning, 22*(3), 310-320.

Yun, Z. S., & Good, L. K. (2007). Developing customer loyalty from e-tail store image attributes. *Managing Service Quality, 17*(1), 4-22.