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Eric T.K. Lim

Faculty of Economics and Business, University of Groningen, Groningen, The Netherlands, e.t.k.lim@rug.nl

Dianne Cyr

Beedie School of Business, Simon Fraser University, Vancouver, B.C., Canada, cyr@sfu.ca

C.W. Tan

Faculty of Economics and Business, University of Groningen, Groningen, The Netherlands, c.w.tan@rug.nl

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UNTANGLING UTILITARIAN AND HEDONIC CONSUMPTION BEHAVIORS IN ONLINE SHOPPING

Eric T.K. Lim, Faculty of Economics and Business, University of Groningen, Groningen, The Netherlands, e.t.k.lim@rug.nl

Dianne Cyr, Beedie School of Business, Simon Fraser University, Vancouver, B.C., Canada, cyr@sfu.ca

C.W. Tan, Faculty of Economics and Business, University of Groningen, Groningen, The Netherlands, c.w.tan@rug.nl

Abstract

Increasingly, researchers have come to acknowledge that consumption activities comprise both utilitarian and hedonic elements. Whereas utilitarian consumption accentuates the achievement of predetermined outcomes typical of cognitive customer behavior, its hedonic counterpart relates to affective customer behavior in dealing with the emotive and multi-sensory aspects of the consumption experience. While utilitarian consumption activities appeal to the rationality of customers in inducing their intellectual buy-in of the consumption experience, customers' emotional buy-in can only be attained through hedonic consumption activities. The same can be said for online shopping. Because the online shopping environment is characterized by the existence of an IT-enabled web interface that acts as the focal point of contact between customers and vendors, its design should embed utilitarian and hedonic elements in order to create a holistic consumption experience. Drawing on the Expectation Disconfirmation Theory (EDT), this study advances a model that not only delineates between utilitarian and hedonic customer expectations for online shopping but also highlights how these expectations can be best served through design elements of e-commerce websites catering to functional and aesthetic performance respectively. The model is then empirically verified via an online survey administered on a sample of 303 student respondents. Theoretical contributions and pragmatic implications to be gleaned from our empirical findings are discussed.

Keywords: Utilitarian Expectations, Hedonic Expectations, Transactional Functionalities, Aesthetic Properties.

1 INTRODUCTION

Consumption activities entail both utilitarian and hedonic components (Batra & Ahtola 1990). Whereas utilitarian consumption appeals to the cognitive rationality of customers by emphasizing the achievement of desirable outcomes from shopping activities (Babin et al. 1994), hedonic consumption is derived from the emotive and multi-sensory aspects of the transactional experience (Hirschman & Holbrook 1982). By focusing exclusively on utilitarian consumption (or product acquisition), past studies have been criticized for not adequately reflecting the totality of customers' shopping experience (Bloch & Richins 1983a; Hirschman 1984) as they fail to weigh in the emotional costs and benefits associated with consumption activities (Holbrook 1986).

The same sentiments have been expressed for online shopping (Childers et al. 2001). The interactive nature of the Internet offers numerous opportunities to enrich customers' online shopping experiences by improving accessibility to product information, enabling direct multi-attribute comparisons, reducing buyer search costs and streamlining purchases (e.g., Cenfetelli et al. 2008; Wang & Benbasat 2009, Xiao & Benbasat 2007). While considerable research has been conducted on these utilitarian facets of online shopping, the recognition of the Internet as a hedonic communication medium has only gained in momentum recently (Orwall 2001).

Wang and Benbasat (2005) have demonstrated that customers treat technological artefacts embedded within e-commerce websites as social actors and ascribe humanlike characteristics to them. Therefore, insofar as e-commerce websites are viewed as social entities by customers during online shopping, these websites must not only fulfil their intended utilitarian functions (Cenfetelli et al. 2008), they should also deliver a hedonically charged transactional experience (Cyr et al. 2007; Lankton & Wilson 2007). Building on the Expectation Disconfirmation Theory (EDT), this study advances and validates a model that delineates between cognitive and affective elements of online shopping as determinants of customer satisfaction with e-commerce websites. We propose that feelings of satisfaction arise from customers' assessment of whether the functional and aesthetic performances of an e-commerce website cater sufficiently to the fulfilment of utilitarian and hedonic expectations respectively. In doing so, this study endeavours to offer an answer to the following research question: *“How can information technology be leveraged to improve customers' utilitarian and hedonic satisfaction with e-commerce websites?”*

2 DISENTANGLING THE IMPACT OF UTILITARIAN AND HEDONIC ELEMENTS ON E-COMMERCE WEBSITE DESIGN

The EDT posits that expectations, coupled with perceived product performance, determine customer satisfaction (Oliver 1977, 1980). This effect is in turn mediated by the positive or negative disconfirmation of customers' expectations through product performance: one's expectations will be: (1) negatively disconfirmed whenever the product performs worse than expected; (2) confirmed whenever the product performs as expected, and; (3) positively disconfirmed whenever the product performs better than expected (Oliver, 1977; Spreng et al., 1996). Although the EDT is rooted in investigations of physical products, its growing application to a variety of Internet-related phenomena suggest that the theory is versatile in explaining and predicting users' reactions towards web technologies (e.g., Khalifa & Liu 2004; Lin et al. 2005; McKinney et al. 2002; Piccoli et al. 2004). We therefore subscribe to the EDT as the theoretical framework upon which to examine the impact of utilitarian and hedonic elements on customer satisfaction for e-commerce websites.

Scholars have associated shopping with the attainment of both utilitarian (e.g., Bloch & Richins 1983a) and hedonic benefits (e.g., Bloch & Bruce 1984). Although consumer behavioral studies have typically portrayed shopping as a chore or ordeal through accounts of distressed customers who were confronted with the dark side of shopping (e.g., Fischer & Arnold 1990), detractors have challenged this parochial view through their depiction of shopping as a fun and memorable activity (e.g., Bloch &

Bruce 1984; Hirschman 1984). Babin et al. (1994) thus maintained that any holistic appreciation of shopping experiences must capture the duality of rewards for human behavior through acknowledging: “(1) a utilitarian outcome resulting from some type of conscious pursuit of an intended consequence, and; (2) an outcome related more to spontaneous hedonic responses” (p. 645; see also Holbrook, 1986). Likewise, Childers et al. (2001) distinguished between utilitarian and hedonic elements of e-commerce websites as exerting distinct but equally salient influences on customers’ online shopping experiences. We hence posit that customers’ satisfaction with online shopping experiences is dependent on the attainment of both utilitarian and hedonic outcomes. We henceforth refer to *utilitarian satisfaction* as the *psychological state arising from emotions surrounding disconfirmed utilitarian expectations* and *hedonic satisfaction* as the *psychological state arising from emotions surrounding disconfirmed hedonic expectations*. Further, because overall satisfaction is founded on customers’ evaluation of the shopping experience in its entirety according to the EDT (Spreng et al. 1996), we hypothesize that:

Hypothesis 1: A customer’s utilitarian satisfaction with an e-commerce website is positively related to his/her overall satisfaction with the website.

Hypothesis 2: A customer’s hedonic satisfaction with an e-commerce website is positively related to his/her overall satisfaction with the website.

3 INTELLECTUAL BUY-IN: FULFILLING UTILITARIAN EXPECTATIONS VIA FUNCTIONAL PERFORMANCE

Utilitarian value has dominated much of the research conducted in the area of consumer behavior (Bloch & Bruce 1984). Utilitarian consumer behavior has been described as task-oriented and rational (Batra & Ahtola 1990) in that customers’ functional utility is dependent on whether their consumption needs, which inspire the shopping trip, were met successfully (Babin et al. 1994). Often, this translates to the hassle-free acquisition of products/services, but occasionally, utilitarian value might also be derived from information gathering activities performed by a situationally-motivated customer out of necessity (e.g., a computer novice might exploit shopping as a means of boosting his/her knowledge of laptops in anticipation of a purchase in the near future) (Bloch & Richins 1983b).

The recognition of e-commerce websites as a means to attain utilitarian outcomes has pervaded extant literature (e.g., Cenfetelli et al. 2008; Wang and Benbasat, 2005). Findings from past studies have alluded to the importance of cognitively-driven constructs such as perceived usefulness and perceived ease of use in inducing customers’ adoption of e-commerce websites. Specifically, previous research has identified transactional functionalities, which facilitate customers in acquiring products/services, as being instrumental to the achievement of utilitarian outcomes during online shopping. For instance, Wang and Benbasat (2005) observed that the inclusion of facilities explaining the rationale behind product recommendations by recommendation agents empowers customers to rationalize about the suitability of a recommended product relative to their requirements. Conversely, Cenfetelli et al. (2008) demonstrated that the quality of e-commerce websites—as determined by the breadth and depth of service functionalities which support customers’ transactional needs from pre- to post-consumption stages—plays a pivotal role in shaping customers’ cognitive attitudes towards online shopping. *Utilitarian disconfirmation* is hence conceived in this study as a *customer’s subjective assessment of the comparison between his/her utilitarian expectations and the functional performance of an e-commerce website*. Since a great deal of research has established the impact of expectancy disconfirmation on satisfaction (e.g., Oliver 1977, 1993; Spreng et al. 1996; see also Yi, 1990 for a comprehensive review), we hypothesize that:

Hypothesis 3: A customer’s utilitarian disconfirmation of an e-commerce website is negatively related to his/her utilitarian satisfaction with the website.

According to Bitner (1990), customers’ pre-consumption expectations are principal drivers behind dissatisfactory service encounters. It is therefore logical to deduce that it is harder to satisfy customers with higher levels of predefined expectations as they are more likely to report a disconfirmation of

their anticipations. The same can be said for e-commerce websites. Though there is a prevailing assumption that pinpoints vendors as the culpable party whenever desired services are absent from e-commerce websites, more recent research has begun to dispel this myth (Holloway & Beatty 2003). The reason being that customers are equally likely to be responsible for errors made in the online transactional process (e.g., entering the wrong quantity during online purchases). But contrary to assuming responsibility for mistakes made during online transaction, Holloway and Beatty (2003) observed that unreasonably or ridiculously high expectations may cause customers to complain of service failures if the e-commerce website is unable to offer any means of rectification. Cenfetelli et al. (2008) reached an identical conclusion by demonstrating that transactional functionalities on e-commerce websites must meet customers' service expectations to be effective in promoting continual usage behaviors. To arrive at a descriptive typology of utilitarian expectations affecting customers' evaluation of e-commerce websites, we subscribe to Moore and Benbasat's (1991) refinement of the Innovation Diffusion Theory (IDT) as our underlying conceptual framework. Constructs embedded within Moore and Benbasat's (1991) model are not only inspired by Roger's (1995) well-established IDT and oriented towards cognitively-driven system attributes, they have also been subjected to rigorous construct validation and empirical testing, thereby lending weight to their orthogonality and pertinence in explaining the diffusion of technological innovations among potential adopters. Table 1 summarizes our adaptation of Moore and Benbasat's (1991) technological innovation characteristics to the context of e-commerce websites.

Utilitarian Expectation	Original Definition	Adapted Definition
Relative Advantage	"Degree to which an innovation is perceived as being better than its precursor" (p. 195)	Degree to which the e-commerce website offers transactional content that is unavailable offline
Ease of Use	"Degree to which an innovation is perceived as being difficult to use" (p. 195)	Degree to which the utilization of the e-commerce website is free of effort
Image	"Degree to which use of an innovation is perceived to enhance one's image or status in one's social system" (p. 195)	Degree to which the e-commerce website enhances one's image or status in one's social system
Visibility	Degree to which one can perceive others to be using the system	Degree to which the e-commerce website is being utilized by others
Compatibility	"Degree to which an innovation is perceived as being consistent with the existing values, needs, and past experiences of potential adopters" (p. 195)	Degree to which the e-commerce website is consistent with one's existing needs and past transactional experiences
Results Demonstrability	"Tangibility of the results of using the innovation, including their observability and communicability" (p. 203)	Degree to which the outcome generated from the e-commerce website is tangible, observable and communicable
Voluntariness of Use	"Degree to which use of the innovation is perceived as being voluntary, or of free will" (p. 195)	Degree to which usage of the e-commerce website is voluntary or of free will

Table 1. Adaptation of Moore and Benbasat's (1991) Technological Innovation Characteristics as Utilitarian Expectations of e-Commerce Websites

Arguably, the greater the attachment a customer places on each of the seven utilitarian expectations depicted in Table 1, the more tenuous it will be for an e-commerce website to satisfy the customer.

Hypothesis 4: A customer's perceived importance of the seven utilitarian expectations associated with an e-commerce website is positively related to his/her utilitarian disconfirmation of the website.

Past studies have documented a dominant effect of expectations on performance (e.g., Oliver 1977; Spreng et al. 1996). Results essentially point to the tendency of individuals to voluntarily and selectively raise or lower their assessment of product performance in an attempt to attain synchronicity with pre-consumption expectations, i.e. product performance is a function of pre-exposure

expectations. Because the positive relationship between expectations and performance has received broad empirical support in extant literature, it should hold for e-commerce websites as well:

Hypothesis 5: A customer’s perceived importance of the seven utilitarian expectations associated with an e-commerce website is positively related to his/her evaluation of the functional performance of the website.

Contrary to pre-consumption expectations, the functional performance of e-commerce websites should exert an opposite effect on customers’ perceptions of expectancy disconfirmation (Bitner 1990). High levels of post-exposure functional performance should reduce the likelihood of disconfirmation relative to customers’ expectations, thereby preventing the manifestation of negative attitudes and emotions. Expectedly, previous research has linked the presence of transactional functionalities of e-commerce websites to a host of positive customer attitudes, especially satisfaction (e.g., Cenfetelli et al. 2008). We hence define **functional performance** as *a customer’s subjective assessment of the extent to which an e-commerce website is able to offer transactional functionalities that cater to his/her functional needs* and in accordance with the EDT, hypothesizes that:

Hypothesis 6: A customer’s evaluation of the functional performance of an e-commerce website is negatively related to his/her utilitarian disconfirmation of the website.

Hypothesis 7: A customer’s evaluation of the functional performance of an e-commerce website is positively related to his/her utilitarian satisfaction with the website.

Our preceding definition underscores the multi-dimensionality of functional performance. Within extant marketing literature, the term—augmented or supplementary service—has been coined to depict services that are devised to complement a core product in order to generate additional value for customers (Lovelock 1991, 1994; Lovelock & Yip 1996). Indeed, Lovelock (1991) formalized an elaborate model comprising nine ‘pedals’ of supplementary services (see Table 2), which are deemed vital to the realization of satisfactory shopping experiences (see also Lovelock and Yip, 1996). Grounded in Lovelock’s (1991) supplementary service model, we explicate the spectrum of transactional functionalities that shape customers’ evaluation of functional performance for e-commerce websites and hypothesize that:

Hypothesis 8: A customer’s evaluation of the presence of each of the nine transactional functionalities within an e-commerce website is positively related to his/her functional performance of the website.

Construct	Definition
Consultation and Advice	Establish dialogue with the customer in order to probe product or service requirements before developing a tailored solution
General Information	Allow customers to learn more about the products and services offered by different vendors as well as to contact these companies through various channels
Order Taking	Facilitate customers in placing purchase orders or making reservations
Payment	Simplify and convenience the transfer of funds
Specific Information	Provide customers with relevant information pertaining to products or services such as schedules, operating instructions, and user warnings
Caretaking and Safekeeping	Assist the customer with caring for purchased products or services
Billing	Offer clear and understandable listing of charges
Handling Exceptions	Personalize customers’ experience and interaction through accommodating special requests, solving problems, handling complaints and suggestions as well as responding to compliments and requests for restitutions
Hospitality	Treat customers as valued guests by granting efficient and effective access to offered products and services

Table 2. Taxonomy of Transactional Functionalities

4 EMOTIONAL BUY-IN: FULFILLING HEDONIC EXPECTATIONS VIA AESTHETIC PERFORMANCE

The festive or epicurean aspects of shopping have received far less attention within extant literature (Babin et al. 1994). As opposed to utilitarian value, hedonic value tends to be more personal and subjective in that it is realized through the amount of fun experienced in the shopping process (Holbrook & Hirschman 1982). Hedonic shopping value thus reflects the potential entertainment and emotional worth to be gained by customers in performing the shopping activity (Hirschman & Holbrook 1982). Here, “the purchase of goods may be incidental to the experience of shopping. People buy so they can shop, not shop so they can buy” (Langrehr 1991, p. 428). Vicarious consumption can grant hedonic value by enabling customers to gain gratification without committing to any actual purchases (Fischer & Arnold 1990) even though the act of purchasing goods/services can also produce hedonic value and may at times, serve as the climax of the entire shopping experience (Babin et al. 1994). For example, perceived enjoyment has frequently been cited as an important hedonic benefit of shopping (Bloch et al. 1986). Another common source of hedonic value is found in bargains where the difference between the selling price of a product and the internal reference price of a customer extend beyond an additive measure of functional utility to foster feelings of anxiety and excitement (Schindler 1989). In fact, affective emotions such as increased arousal, heightened involvement, perceived freedom, fantasy fulfillment, and escapism are generally indicative of a hedonically satisfying shopping experience (Bloch & Richins 1983b; Hirschman 1984).

In the same vein, prior research has uncovered alternate factors that drive customers’ acceptance of e-commerce websites and yet cannot be readily subsumed under the category of utilitarian expectations. For example, the concept of enjoyment, popularized as a hedonic component of offline shopping, has been revealed to be “a strong predictor of attitude in the web-shopping context” (Childers et al. 2001, p. 526; see also Cyr et al. 2006, 2007; Hassanein & Head, 2006; Lankton & Wilson 2007; Koufaris et al. 2002). Flow—the holistic experience that people feel when they act with total involvement (Csikszentmihalyi 1989)—is another hedonic element that has attracted substantial scholarly attention as being predictive of customers’ receptivity towards e-commerce websites (e.g., Eroglu et al. 2003; Griffith et al. 2001; Ha et al. 2007; Koufaris et al. 2002). To address the myriad of hedonic expectations, the aesthetic performance of e-commerce websites is of the utmost importance (Cyr et al. 2006). We therefore define *hedonic disconfirmation* as *a customer’s subjective assessment of the comparison between his/her prior hedonic expectations and the aesthetic performance of an e-commerce website* and hypothesize that:

Hypothesis 9: A customer’s hedonic disconfirmation of an e-commerce website is negatively related to his/her hedonic satisfaction with the website.

Childers et al. (2001) observed that motivations to engage in online shopping comprise both utilitarian and hedonic dimensions because the customizability of e-commerce websites presents “an expanded opportunity to create a cognitively and aesthetically rich shopping environment” (p. 511). Inability to synchronize the aesthetic design of e-commerce websites with pre-consumption expectations should therefore lead to perceptions of expectancy disconfirmation or failures (Holloway & Beatty 2003). This position is also echoed by Khalifa and Liu (2004), who reported a positive impact of predefined expectations on expectancy disconfirmation for Internet-based services.

Like utilitarian expectations, hedonic expectations is multi-dimensional in nature as evidenced by the multitude of affectively-driven motivations found in extant literature (e.g., Cyr et al. 2006, 2007; Dabholkar & Bagozzi 2002; Ha et al. 2007; Lankton & Wilson 2007). Yet, despite the growing acknowledgement of hedonic expectations as salient drivers of consumer behavior, the noticeable absence of a systematic categorization of relevant factors has made it sufficiently difficult to comprehend how such expectations relate to post-consumption satisfaction.

To arrive at an explanatory set of dimensions constituting hedonic expectations, we conducted an extensive review of extant e-commerce literature. From the literature review, we uncover three

predominant dimensions of hedonic expectations that may potentially affect customers' subjective assessment of e-commerce websites, namely enjoyability, excitability and flow.

Enjoyability, as a hedonic motivation of customer action, has been confirmed by numerous scholars (see Childers et al. 2001; Cyr et al. 2006, 2007; Hassanein & Head 2006; Lankton & Wilson 2007; Koufaris et al. 2002). As an influential factor of customer attitudes in e-commerce transactions, enjoyability is affiliated with the experiential aspects of shopping (Forman & Sriram 1991). Although Dabholkar and Bagozzi (2002) made use of the term 'play' in place of enjoyability in their work, they admitted that its meaning is no different from that of the latter. Consequently, enjoyability qualifies as a hedonic expectation and is defined in this study as the *degree to which the e-commerce website is able to accord feelings of pleasure in the customer through its utilization*.

The term **excitability** is proposed in this study as the construct encompassing hedonic motivations like play (Mathwick & Rigdon 2004), stimulation (Fiore et al. 2005) and mystery (Rosen & Purinton 2004). While the aforementioned constructs may differ in their conceptions, they share commonalities in their emphasis on shopping as an engaging and adventurous journey, thereby leading to emotional arousal on the part of the customer. We hence define excitability as the *degree to which the e-commerce website is able to engage the customer in a state of heightened arousal through its utilization*.

The notion of **flow** as an affective motivational factor has been well-established (e.g., Eroglu et al. 2003; Griffith et al. 2001; Ha et al. 2007; Koufaris et al. 2002). As pointed out by Csikszentmihalyi (1989), when people are trapped in the flow state, they become totally involved in the ongoing activity and are unable to detect changes in their immediate surroundings. Specifically, flow is an end in itself as the activity must be intrinsically rewarding to secure people's involvement. Flow is thus characterized by: (1) a sense of playfulness; (2) a feeling of being in control; (3) strong concentration and loss of self-consciousness; (4) a distorted reality of time, and; (5) mental delight in an activity purely on its own (Ha et al. 2007). In keeping with the spirit of flow as a hedonic expectation associated with e-commerce websites, we define flow as the *degree to which the e-commerce website is able to involve the customer and keep him/her preoccupied through its utilization*.

Since enjoyability, excitability and flow represent a significant portion of customers' expectations of e-commerce websites as affective retail channels, we hypothesize that customers' satisfaction with online shopping is dictated by the capacity of e-commerce websites to meet these hedonic expectations:

Hypothesis 10: A customer's perceived importance of the three hedonic expectations associated with an e-commerce website is positively related to his/her hedonic disconfirmation of the website.

Though there is no pre-existing empirical finding that substantiates the positive linkage between hedonic expectations and the aesthetic performance of e-commerce websites, this relationship should hold given that it is inherited from the EDT and has been extensively corroborated with evidence from offline retail settings (e.g., Oliver 1977, 1980; Spreng et al. 1996).

Hypothesis 11: A customer's perceived importance of the three hedonic expectations associated with an e-commerce website is positively related to his/her evaluation of the aesthetic performance of the website.

The aesthetic performance of e-commerce websites in addressing customers' hedonic motivations has been well-investigated within extant literature (Cyr et al. 2006). Whether it is the effect of social presence on perceived enjoyment (Hassanein & Head 2006), the impact of media vividness on involvement (Griffith et al. 2001) or the influence of atmospheric cues on flow perceptions (Eroglu et al. 2003), there is an abundance of empirical evidence attesting to the viability of designing e-commerce websites with an eye towards aesthetics so as to match the hedonic expectations of customers during online shopping. We define **aesthetic performance** as *a customer's subjective assessment of the extent to which an e-commerce website is able to offer a multi-sensory shopping experience that cater to his/her entertainment needs* and hypothesize that:

Hypothesis 12: A customer’s evaluation of the aesthetic performance of an e-commerce website is negatively related to his/her hedonic disconfirmation of the website.

By the same rationale, a customer whose hedonic expectations has been fulfilled or met through the aesthetics made accessible from the e-commerce website is more likely to be satisfied with the online shopping experience. We thus hypothesize that:

Hypothesis 13: A customer’s evaluation of the aesthetic performance of an e-commerce website is positively related to his/her hedonic satisfaction with the website.

Social presence—“the extent to which a medium allows users to experience others as psychologically present” (Gefen & Straub 2003, p. 11)—is characterized as the capacity of communication media to transmit information richness and has been proven to exert a positive influence on the enjoyment of the online shopping experience by fostering a psychological connection between the e-commerce website and customers (Cyr et al. 2009), encouraging feelings of warmth and sociability towards the former much like human contact (Hassanein & Head, 2006). Conversely, Griffith et al. (2001) noted that media vividness (i.e., engaging and interactive user interface) is critical in retaining customers’ involvement during online shopping. It can thus be inferred that media vividness should impact customers’ flow perception in dealing with e-commerce websites. Other aesthetic design implications arising from the desire to fulfill hedonic expectations involve recommendations of including atmospheric cues (Eroglu et al. 2003) such as animation (Fasolo et al. 2006), color (Cyr et al. 2010) and pleasurable background music (Morin et al. 2007) to induce a sense of excitement during the online shopping process. Table 3 summarizes the aesthetic properties impacting customers’ evaluation of aesthetic performance for e-commerce websites and we further hypothesize that:

Hypothesis 14: A customer’s evaluation of the presence of each of the three aesthetic properties within an e-commerce website is positively related to his/her aesthetic performance of the website.

Construct	Definition
Social Presence	Enable customers to experience others as though they are psychologically present
Media Vividness	Is engaging and interactive
Atmospheric Cues	Involves animation and pleasurable background music

Table 3. Taxonomy of Aesthetic Properties

5 METHODOLOGY

This study adopts the field survey methodology for data collection. Data is gathered on a variety of e-commerce websites with the aid of student respondents. That is, each respondent is asked to recall an e-commerce website he/she frequently visit and evaluate the extent to which transactional functionalities and aesthetic properties accessible from this website disconfirm His/her utilitarian and hedonic expectations. The data is then analyzed via Structural Equation Modelling (SEM) techniques to validate our theoretical model.

5.1 Development of Survey Measures

Abiding by standard psychometric procedures (Nunnally & Bernstein 1994), three to four measurement items are generated for constructs in the theoretical model whenever necessary. Measures for the seven dimensions of utilitarian expectations are adapted from Moore & Benbasat (1991). Measures for enjoyability are adapted from Hassanein & Head (2006). Measures for three of the nine transactional functionalities (i.e., order taking, payment, caretaking and safekeeping) as well as those for satisfaction are adapted from Cenfetelli et al. (2008). Social presence is measured via five items adapted from Gefen and Straub (2003). Finally, extant literature on the EDT is referenced in wording measurement items for the two disconfirmation constructs (e.g., Bhattacharjee 2001).

5.2 Design of Survey Questionnaire

Given the predominantly Internet-savvy target audience, we deem an electronic survey to be the most appropriate choice (Stanton & Rogelberg 2001). An online questionnaire is crafted and circulated among graduate students and faculty members to solicit feedback on its format and presentation. This initial review is crucial in establishing the clarity of survey instructions as there will not be any face-to-face interaction between investigators and respondents. We also assessed the proper functioning of the survey questionnaire across a variety of browser platforms (e.g., Microsoft Internet Explorer, Netscape, Mozilla Firefox), display resolutions and hardware systems (e.g., Pentium PCs, Macintoshes). Other than minor formatting issues, no major problem surfaced during a pre-test conducted prior to the launch of the actual survey.

5.3 Sample and Data Collection Procedures

Respondents for the survey are recruited from students attending an undergraduate course in a large North American university. An email with detailed explanations on the purpose of this research together with instructions on survey procedures is sent to each student to invite him/her to participate in the study. The email also contains a hyperlink to the online questionnaire for students, who are willing to participate in the survey, to click through. The first page of the survey questionnaire houses a consent form that potential respondents must acknowledge electronically before they are allowed to proceed. Participation is voluntary and respondents are permitted to withdraw from answering the survey at any moment in time by simply closing their browser.

Survey respondents are requested to assess an e-commerce website for which they have performed a transaction within the period of the last six months (see Cenfetelli et al. 2008). Each website is evaluated based on the transactional functionalities and aesthetic properties offered, the individual's utilitarian and hedonic expectations as well as his/her perception of the remaining seven constructs (i.e., functional and aesthetic performance, utilitarian and hedonic disconfirmation and satisfaction and overall satisfaction). One of the challenges in web data collection resides in the computation of non-response bias because, as observed by Stanton and Rogelberg (2001), it is difficult to keep track of multiple submissions by the same respondent or the contamination of the data sample by outsiders. Fortunately, because students are recruited from a class of 387 students, we arrive at a computed approximate of 82.95% (321/387) response rate. After deleting another 18 responses due to data runs, we arrive at an eventual sample of 303 data points for analysis. On average, the sample consists of 145 (or 47.85%) females who carry out e-commerce transactions at least once a month.

5.4 Data Analysis

Partial Least Squares (PLS) analysis is used to analyze the survey data. The PLS analytical technique is chosen for its capability in handling highly complicated predictive models with a large array of theoretical constructs (Barclay et al. 1995). For data analysis, we modeled utilitarian and hedonic expectations as second-order aggregates because it is apparent from our earlier discussion that each of the dimensions constituting the aforementioned two constructs can manifest independently one another, be it Moore and Benbasat's (1991) adaptation of Roger's (1995) IDT or our inductive derivation of enjoyability, excitability and flow from contemporary literature.

The verification of the measurement model involves the estimation of internal consistency as well as the convergent and discriminant validity of the measurement items included in our survey instrument. Because reflective items supposedly capture the effects of the construct under scrutiny (Bollen 1989), internal consistency can be assessed through standard estimates of Cronbach's alpha (Nunnally and Bernstein, 1994), composite reliability and the Average Variance Extracted (AVE) (Fornell & Larcker 1981). After dropping 10 measurement items due to low factor loadings (i.e., < .70), the latent constructs exceed prescribed thresholds, thus supporting convergent validity. To determine discriminant validity, the square root of the AVE for each construct was compared against its

correlations with other constructs (Fornell & Larcker 1981). For the criterion of discriminant validity to hold, the square root of the AVE for each construct should be greater than its correlations with any other construct. Based on the inter-construct correlation matrix generated from PLS, all constructs display sufficient discriminant validity. Discriminant and convergent validity are further established when individual items in our study load above 0.5 on their associated factors and when the loadings within constructs are greater than those across constructs.

The test of the structural model includes estimates of the path coefficients that indicate the strengths of the relationships between the dependent and independent variables as well as the R^2 values that represent the amount of variance explained by the independent variables on its dependent counterpart. Taken together, the R^2 values and the path coefficients (the loadings and the significance respectively) provide an indication of how well the hypothesized model is substantiated by the data. Results from PLS analysis of the structural model, including path coefficients and their statistical significance, are depicted in Figure 1.

From our data analysis, a majority of hypothesized relationships are substantiated by the empirical evidence. As postulated, *utilitarian satisfaction* ($\beta = 0.60, p < 0.001$) and *hedonic satisfaction* ($\beta = 0.29, p < 0.001$) exert positive and significant effects on customers' *overall satisfaction* towards e-commerce websites, explaining 61% of variance in the latter and substantiating hypotheses 1 and 2. In turn, *utilitarian disconfirmation* ($\beta = -0.22, p < 0.001$) and *hedonic disconfirmation* ($\beta = -0.34, p < 0.001$) have significantly negative impacts on *utilitarian satisfaction* and *hedonic satisfaction* respectively, thus corroborating hypotheses 3 and 9. Further, *functional performance* ($\beta = 0.51, p < 0.001$) and *aesthetic performance* ($\beta = 0.44, p < 0.001$) exert positive and significant effects on *utilitarian satisfaction* and *hedonic satisfaction*, which when combined with their corresponding disconfirmation constructs, account for 34% and 29% of variance explained in *utilitarian satisfaction* and *hedonic satisfaction* respectively. This reinforces hypotheses 7 and 13. *Functional performance* has a significantly negative impact on *utilitarian disconfirmation* ($\beta = -0.12, p < 0.01$) whereas *aesthetic performance* has a weakly significant positive relationship with *hedonic disconfirmation* ($\beta = 0.08, p < 0.10$). Hypothesis 6 is hence supported whereas hypothesis 12 is not. Contrary to our anticipations, both *utilitarian expectations* exert significantly negative effect on *utilitarian disconfirmation* ($\beta = -0.10, p < 0.05$) whereas *hedonic expectations* has no effect on *hedonic disconfirmation*. Hypotheses 4 and 10 are unsupported. Combining expectations and performance constructs, our model explains 3% and 1% of variance in *utilitarian disconfirmation* and *hedonic disconfirmation*. Consistent with hypotheses 5 and 11, *utilitarian expectations* ($\beta = 0.12, p < 0.01$) and *hedonic expectations* ($\beta = 0.16, p < 0.001$) have positive and significant impacts on *functional performance* and *aesthetic performance*. Of the seven constituent dimensions comprising the second-order aggregate construct of *utilitarian expectations*, most are significantly positive contributors except for *image* ($\beta = 0.03, p > 0.05$) and *visibility* ($\beta = -0.10, p < 0.05$). Conversely, *enjoyability* ($\beta = 0.39, p < 0.001$), *excitability* ($\beta = 0.41, p < 0.001$) and *flow* ($\beta = 0.38, p < 0.001$) contribute significantly and positively to the second-order aggregate construct of *hedonic expectations*. With the exception of *general information* ($\beta = -0.10, p < 0.05$), *payment* ($\beta = 0.03, p > 0.05$), *specific information* ($\beta = 0.06, p > 0.05$) as well as *caretaking and safekeeping* ($\beta = -0.10, p < 0.05$), the remaining five transactional functionalities exert significantly positive effects on *functional performance*. Together with the aggregate construct of *utilitarian expectations*, we observe 44% of variance explained in the latter. Consequently, hypothesis 8 is partially validated. In line with hypothesis 14, *atmospheric cues* ($\beta = 0.14, p < 0.001$), *media vividness* ($\beta = 0.27, p < 0.001$) and *social presence* ($\beta = 0.20, p < 0.001$) have positive and significant impacts on *aesthetic performance*. Coupled with the aggregate construct of *hedonic expectations*, 33% of variance is accounted for in the latter through our model.

6 DISCUSSION

This study accomplishes six theoretical objectives. First, it distinguishes between utilitarian and hedonic expectations as distinct but complementary elements driving customers' evaluation of e-commerce websites. As uncovered through our review of extant literature, there exists dual streams of research on how e-commerce websites can be efficaciously designed: whereas one school of thought advocates the provision of transactional functionalities to aid customers in the attainment of utilitarian outcomes, the other urges consideration of aesthetics as an answer to customers' demand for hedonically-charged shopping experiences. Unfortunately, there is no study to-date that explores both research streams in tandem. By building on the EDT, this study is the first of its kind to propose a model of online consumer behaviors that synthesizes utilitarian and hedonic concepts to construct a Nomological network, which informs the design of e-commerce websites. Second, we extend the EDT by conceptualizing customer satisfaction as comprising utilitarian and hedonic elements, which are in turn influenced by utilitarian and hedonic expectations as well as functional and aesthetic performance. Third, we adapt and redefine constructs from the original EDT to better align with the e-commerce context. Particularly, the adaptation of the disconfirmation constructs underscores the baseline from which expectations are contrasted (i.e., functional performance for utilitarian expectations and aesthetic performance for hedonic expectations). Fourth, given that both utilitarian and hedonic expectations are multi-dimensional notions, this study represents a pioneering endeavor to systematically delineate the two constructs into their respective constituent dimensions. The sub-dimensions for utilitarian expectations are derived from Moore and Benbasat's (1991) adaptation of the IDT whereas hedonic expectations are split into its sub-dimensions based on an inductive classification of extant literature. Fifth, we identify dimensions of transactional functionalities and aesthetic properties that can be harnessed as actionable design principles for practitioners in the development of e-commerce websites to cater to both functional and aesthetic purposes. Finally, grounded in the EDT, we empirically validate the impact of utilitarian and hedonic elements of e-commerce websites on customer satisfaction based on a survey of 303 student respondents.

6.1 Implications for Theory

Empirical evidence raises several issues of interest. First, the corroboration of the majority of hypothesized relationships lends weight to the credibility of our theoretical model in predicting the impact of our design prescriptions on customers' satisfaction with e-commerce websites. Second, though the negative relationship between utilitarian expectation and disconfirmation contradict the premise of the EDT, a viable reason behind these observations may be attributable to customers' tendency to avoid situations of cognitive dissonance. In accordance with the cognitive dissonance theory (Cooper 2007), individuals tend to withdraw from beliefs leading to inconsistencies in cognition and are inherently compelled to alter their perceptions to attain cognitive alignment. Customers with high levels of utilitarian expectations may exhibit propensities to confirm rather than disconfirm their expectations of e-commerce websites in order to evade circumstances of cognitive dissonance. Third, the insignificant relationship between hedonic expectations and disconfirmation may be attributed to the fact that customers may not evaluate the aesthetic elements of e-commerce websites in a rational sense. Fourth, as opposed to the entire spectrum of aesthetic properties which are statistically significant predictors of aesthetic performance, certain transactional functionalities are negatively related to functional performance (i.e., general information as well as caretaking and safekeeping). This may suggest that the presence of these transactional functionalities are deemed to be counterproductive to e-commerce transactions from the perspective of customers. A plausible reason may be that the sample consists of veteran shoppers with extensive experience in transacting via e-commerce websites (Venkatesh & Goyal 2010). Therefore, the presence of general information as well as caretaking and safekeeping adds to the transactional burden of such customers by compelling them to expend unnecessary time and effort. The same reasoning probably applies to payment and specific information in that veteran users are unlikely to pay much attention to the availability of such transactional functionalities (Bloch & Richins 1983b). Sixth, it is interesting to

note that aesthetic performance has a weak effect on hedonic disconfirmation and yet, exerts a salient impact on hedonic satisfaction. Two reasons might account for this phenomenon: (1) existing research has only scratched the tip of the iceberg with respect to the hedonic aspects of e-commerce websites as evidenced through the small reported R^2 , or; (2) customers' perception of e-commerce websites as a hedonic medium belongs to an emerging trend such that the former may not possess well-formulated ideas of what is to be expected for the aesthetic performance of the latter. In either case, future research is necessary to shed light on the hedonic constituents of e-commerce websites. Lastly, because customers frequently turn to e-commerce websites due to preferences for transactional anonymity, it may be the case that image and visibility are not likely to be crucial determinants of utilitarian expectations as empirically demonstrated through our data analysis.

6.2 Implications for Practice

From a pragmatic standpoint, this study highlights the criticality of striking a balance in the design of e-commerce websites in order to satisfy both utilitarian and hedonic expectations. Our theoretical model offers a preliminary glimpse into a holistic technological solution for promoting customer satisfaction towards e-commerce websites. An overemphasis on functional performance can easily lead to the creation of website functionalities which fulfil customers' utilitarian needs, but concurrently, the e-commerce vendor may miss out on any probable benefits arising from hedonically-driven shopping activities. Conversely, while an over-reliance on aesthetic performance can readily entice potential customers to shop on the e-commerce website, but without the availability of transaction-oriented functionalities, it is practically impossible for customers to acquire desired products or services even if they wish to do so.

Furthermore, it is evident from our empirical investigation that aesthetic properties improves customers' evaluation of the aesthetic performance of e-commerce websites in general. However, the same cannot be said for transactional functionalities. As can be inferred from our findings, the inclusion of transactional functionalities for general information as well as caretaking and safekeeping are detrimental to customers' evaluation of the functional performance of e-commerce websites. Therefore, e-merchants may wish to remove such features from their e-commerce websites if present. On the other hand, transactional functionalities catering to payment and specific information, while proven to be insignificant based on our empirical findings, should not be ruled out as unnecessary features of e-commerce websites. Further research is required to determine whether the importance one attaches to such features decreases relative to the frequency with which the individual transacts via an e-commerce website.

6.3 Summary

In summary, this study approaches the topic of consumer satisfaction for e-commerce websites from its most primordial component, the duality of utilitarian and hedonic expectations as intrinsic motivations. From this theoretical anchor, we purport and test a model of e-commerce consumer behaviour that details the set of utilitarian and hedonic expectations, which should accompany any design blueprint of e-commerce websites to ensure a rewarding online shopping experience. Together with concerted investigative efforts in the future, we believe that the proposed model will spawn a new genre of thinking with regards to how e-commerce website technologies can be better structured to match behavioural motivations for consumers during online shopping.

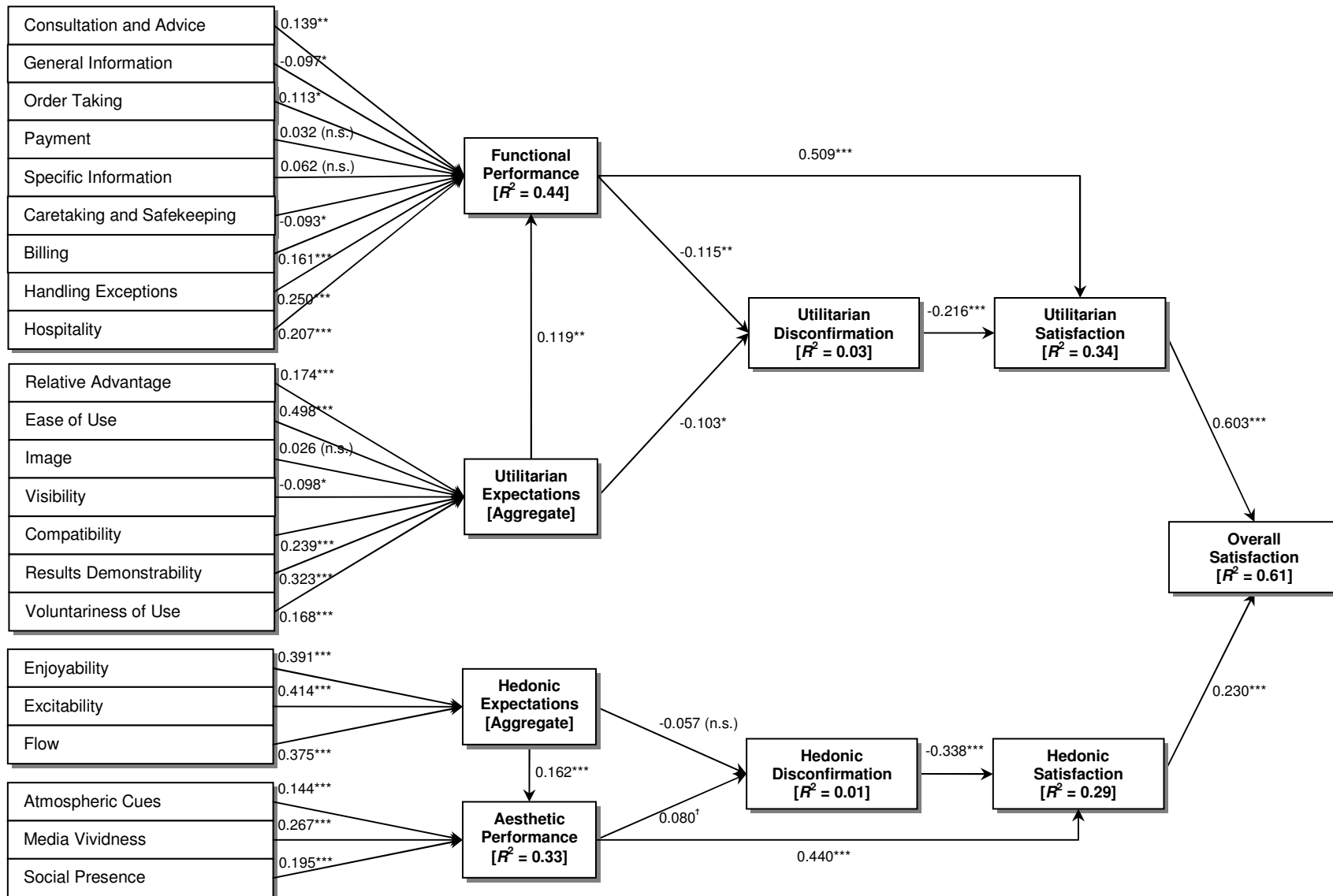


Figure 1. Statistical Results of Structural Model Analysis

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