

Effects of New-to-Market E-Store Features on First Time Browsers

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Abstract

Understanding the effects of website design features on website usage is complicated when buyers differ in their willingness to process information to make decisions for some are maximizers and others satisficers. However it becomes more difficult for a new-to-market e-store with no established familiarity. While extant literature suggests the use of interactivity and personalization features offered by e-stores to reduce consumers' risk perceptions and improve trustworthiness of such stores, there is little guidance on the level of feature provision required to enhance consumer satisfaction in making product selections from a new and unfamiliar e-store. The authors explore this issue in an online experiment with 273 subjects browsing 4 websites offering identical products but with variable levels of interactivity and personalization features. Findings reveal a positive association between the level of feature provision and browser decision-making outcomes. However, interactivity features are more effective for maximizers, whereas personalization ones are more effective for satisficers..

Keywords Website Design; Interactivity; Personalization; E-store; Maximizer; Satisficer.

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1. Introduction

In spite of high investment by e-stores in web-based technologies to improve website design and retain existing customers whilst attracting new ones (Wang, Minot and Wei, 2011), a recent industry report suggests that the browser to buyer conversion rate for retail/e-commerce industry is only 3% (Marketing Sherpa, 2012). In order to understand the reasons behind such a low rate, prior research has focused on issues like privacy, security, order fulfilment capabilities, trust and seller's assistive intent to help browsers search for the information they need and fulfil the task of choosing and ordering a product meeting their requirements (Bart, Shankar, Sultan and Urban, 2005; Cho, 2006; Gupta, Yadav and Varadarajan, 2009). Existing research suggests that e-stores make use of two features that help browsers to seek information and perform such task: interactivity features which browsers can use to communicate with the seller and engage in information search, and personalization features which browsers can use to tailor the information and content of the website according to their requirements (Ansari and Mela, 2003; Liu and Shrum, 2009; Song and Zinkhan, 2008). However, understanding the effects of such features is more complicated, because browsers vary in terms of their needs, ability and motivation to use such features and process information from them (Ganesh, Reynolds, Luckett and Pomirleanu, 2010; Wolfinbarger and Gilly, 2001). A key challenge for managers of internet-based retail start-ups is making their e-store a destination for customers, particularly when it is unknown, offers a limited product range and has no established brand image. With fewer resources to invest in website design than established businesses, it becomes even more crucial for them to understand how they can use website design features to increase e-store

attractiveness to first time visitors and enhance website stickiness so that they can establish a relationship with prospective buyers (Wang et al., 2011; Hausman and Siekpe, 2009; Grewal and Levy, 2007; Rosen, 2001).

As a result of increased competition online, users can search for information from a wider choice of suppliers with low switching costs. Since they are more likely to avoid websites that are perceived to be confusing, too slow or not suited to their needs (Chevalier and Kicka, 2006), the users' first impressions of a website are of the utmost importance (Lindgaard, Fernandes, Dudek and Brown, 2006) for they will either entice them to explore the website further (Tuch, Presslauer, Stöcklin, Opwis and Bargas-Avila, 2012) or drive them away from it (Geissler, Zinkhan and Watson, 2006).

According to Ariely (2000) the information which marketers present to consumers should be suitable for their specific needs and facilitated through the provision of interactive information systems to enable them to control how it flows when they navigate a website to search for information. Liu and Shrum (2009) point out that while features of the website interface design may offer better control and enhanced information processing for some users, they may alternatively make information processing and task completion more difficult for others and result in information overload. Also, individuals vary in terms of their buying decision-making strategies by either being maximizers who seek the best option or satisficers who choose an alternative that is good enough (Schwartz, Ward, Monterosso, Lyubomirsky, White and Lehman, 2002). Establishing the provision of an optimal balance of interactivity and personalization features to assist users to easily and quickly find out what they want from a website can encourage them to stay longer on the site (Yeh and Li, 2014).

Within the consumer behaviour literature Engel, Blackwell and Kollat's (1978) dominant model of the consumer buying decision-making process is depicted as consisting of five steps: problem recognition, information search, evaluation of alternatives, purchase

selection and post-purchase behavior. A consumer may exit the process at any of these steps. Given that a new-to-market e-store needs to appeal to as many first time users as possible, the aim of our study is to better understand how interactivity and personalization features can appeal to users, irrespective of whether they are maximizers or satisficers, and assist them in making purchase selections from its product range. Our research questions are: What are the effects of e-store interactivity and personalization features for a new-to-market e-store on first time browser perceptions of trust, risk, decision satisfaction and attractiveness of alternatives? How are the effects of these features on such perceptions influenced by whether the consumer is a maximizer or a satisficer? We use an experimental study where customers experience e-stores with varying levels of interactivity and personalization features and pursue a goal-directed task of choosing a high involvement product to purchase. The remainder of the paper is organized as follows. In the next section, we review extant literature and develop our hypotheses. We then describe research methodology and present our analysis of results. Finally, we discuss the results, their implications and potential limitations of the study.

2. Theoretical Background

2.1 Interactivity and personalization e-store features

A website requires a significant level of investment and effort to support buying decision-making process (Silverman et al., 2001; O'Keefe and McEachern, 1998). In this study we are solely concerned with how interactivity and personalization features available to users can facilitate the pre-purchase information search and evaluation stages of this process for first time browsers. Both types of tool attract the attention of researchers from marketing, human-computer interaction and information systems disciplines (Chung and Zhao, 2004; Stewart and Pavlou, 2002).

A website's level of interactivity is central to converting visitors to customers (Berthon, Pitt and Watson, 1996) and is positively related to its attractiveness (Ghose and Dou, 1998). Interactivity enables sellers to create human-computer interfaces with highly interactive features (Häubl and Trifts, 2000), which empower users engaged in information search to be able to decide upon what information to access, for how long and in what order (Wu and Lin, 2006). Two broad approaches to interactivity co-exist: the technical and the user perspectives. The former addresses objective (or actual) interactivity and considers the structural aspect that is under the company's control (Steuer, 1992). It is operationalized through the presence or absence of interactive features and the level to which these features are employed (Häubl and Trifts, 2000; Hoffman and Novak, 1996; Steuer, 1992). In contrast, the user perspective concentrates on subjective (or perceived) interactivity felt by the website user outside the company's control (Song and Zinkham, 2008; Liu and Shrum, 2002). Perceived interactivity is defined as "the degree to which two or more communication parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized" (Liu and Shrum (2002) p.54). Nevertheless the relationship between objective and subjective interactivity remains unclear. While some studies claim that increasing the number of interactive website features will determine perceptions of a high level of interactivity (Sicilia, Ruiz and Munuera, 2005; Macias, 2003), other work theoretically challenges the existence of a positive linear relationship (Liu and Shrum, 2002; McMillan and Hwang, 2002) and empirically finds it to be more complex (Song and Zinkhan, 2008; Voorveld, Neijens and Smit, 2011).

Personalization, on the other hand, is defined by Montgomery and Smith (2009) as "an adaptation of the marketing mix to an individual customer based upon the marketer's information about the customer" (p.131). In an online context this translates into offering tailored content to users to meet their requirements (Ansari and Mela, 2003) with the main

motivation of improving the browsing and shopping experience (Adomavicius and Tuzhilin, 2005) and enhancing website usage (Greer and Murtaza, 2003). There are three types of personalization attributes: adaptive personalization which gathers user information by allowing users to choose from different options (Vesanen, 2007); collaborative filtering features that use algorithms to recommend customer recommendations based on their preferences; and content-based filtering which determines user preferences based on content-based prediction (Greer and Murtaza, 2003). In our study we only focus on the influence of adaptive personalization.

2.2 Effects of e-store features on decision making

First of all, many researchers have observed the pivotal role of trust in online decision-making and purchase intentions (see McKnight, Choudhury and Kacmar, 2002; Corritore, Kracher and Wiedenbeck, 2003; Jarvenpaa, S., Tractinsky, N., Vitale, M., 2000). Online trust is defined as “an attitude of confident expectation in an online situation or risk that ones’ vulnerabilities will not be exploited” (Corritore et al., 2003, p. 740). A new-to-market e-store relies on its website to convey its trustworthiness to first time visitors, who by virtue of low switching costs can easily leave the site and visit other e-stores (Koufaris and Hampton-Sousa, 2004). Interactive features which are available to users can assist online shoppers during the information search and evaluation stages of the buying decision-making process. For example, recommendation agents help to initially screen the alternatives available from an online store and comparison matrices enable detailed evaluations to be made among selections being considered (Häubl and Trifts, 2000). For Gupta et al. (2009) these types of features influence the trustworthiness of new-to-market e-retailers. They found that leveraging task-related website functionalities (in the form of interactive information management and comprehension features) to enable prospective buyers to personalize

website content and facilitate choice decisions will increase initial trust formation for complex and information-rich products. In a similar vein, McKnight et al. (2002) found a positive association between perceived site quality and trusting beliefs in an online supplier at the initial phase of trust development. Thus, the use of such features almost certainly influence trust and confidence amongst users in potential relationships with a new-to-market e-retailer. Nevertheless, neither study offers guidance about the level of tool provision required.

Secondly, Song and Zinkhan (2009) claim that using website features may also positively influence satisfaction. For a user perceived interactivity brings about cognitively involving experiences through active control and two-way communication (Liu and Shrum, 2002). Since the ability to be in control of one's own communication experiences can result in higher self-efficacy beliefs (Gist and Mitchell, 1992), Liu and Shrum (2002) proposed a positive relationship between each interactivity dimension and user satisfaction. Indeed Teo, Oh, Liu and Wei (2003) argue that satisfaction captures a website's affective appeal. Meanwhile corroborating evidence from Ballantine (2005) maintains that perceptions of the level of not only interactivity but also of the amount of product information provision positively influencing satisfaction. Similarly, Dholakia and Zhou (2009) found that objective and subjective interactivity positively impacts on customer satisfaction and behavioural intentions (Dholakia and Zhou, 2009). Nevertheless managers should be cautious about increasing the number of interactive design features or the amount of product-related information on a website since an optimal threshold may exist beyond which satisfaction decreases owing to feelings of sensory or information overload (Ballantine, 2005; Jacoby, Speller and Kohn, 1974). Furthermore, Song and Zinkhan (2008) contend that increasing interactivity features would not automatically enhance perceived interactivity and web effectiveness. Together, these studies highlight the need for further research to better

understand how users' interaction with specific website features impacts on internal psychological states.

Satisfaction has largely been explored in the marketing literature in terms of Oliver's (1980) expectancy-disconfirmation model, which postulates that satisfaction or dissatisfaction is the result of a comparison of pre-purchase expectations against perceptions of actual performance. Consequently it is often examined as a summary evaluative judgement of the shopping experience generally (Fornell, Johnson, Anderson, Cha and Bryant, 1996). However in a recent study of the use of personalized technologies to tailor the online purchase process to individual customer needs, Thirumalai and Sinha (2011) examined customer satisfaction at two distinct sub-process levels (i.e. customization of information content to aid customers to make decisions through personalized recommendations and customization of the purchase transaction process). They found a positive relationship between customer satisfaction and decision customization through the provision of choice assistance, as well as one between customer satisfaction and transaction customization through making online purchase transactions personal, convenient and interactive. They are not the only authors to point out that a process-based view of satisfaction ought to be taken. Heitmann, Lehmann and Herrman (2007), expanding upon earlier work by Fitzsimons, Greenleaf and Lehmann (1997), argue for decision satisfaction (i.e. satisfaction with the purchase decision making process) to be treated as a separate construct from consumption satisfaction (i.e. satisfaction with the outcome of the purchase decision process).

Thirdly, customers using a supplier for the first time will normally feel a degree of uncertainty and vulnerability, particularly when services are high involvement ones that are personally important, heterogeneous or complex (Berry, 1995). Hence the importance of having two-way communications and customer service guarantees to help suppliers show

their trustworthiness. The notion of trust is also related to risk: they are inseparable components in a rational decision-making process with the calculative action of trust always involving an element of risk (Morrison and Firmstone, 2000). Perceived risk is conceptualized as a customer's anticipation of negative consequences and feelings of uncertainty about the services provided by a supplier (Dowling and Staelin, 1994). For a consumer visiting the website of an unfamiliar new-to-market e-retailer, the formation of initial trust is crucial for reducing risk perceptions with regard to a possible future transaction with the firm (Koufaris and Hampton-Sousa, 2004).

Next, further criticisms of Oliver's (1980) expectancy-disconfirmation model on the grounds that it only measures post-purchase satisfaction are voiced by Johnson, Sividas and Garbarino (2008). They claim that since risk perceptions in future offerings of an organization are negatively influenced by retrospective and cumulative customer evaluations of satisfaction with encounters involving the organisation, and hence perceived risk should be considered as a form of expectation influenced by satisfaction with these encounters. This reasoning is founded on Sweeney, Soutar and Johnson's (1999 p.81) definition of perceived risk as "the subjective expectation of a loss" and recognition that current satisfaction may reduce anxiety about future performance. We therefore expect risk perceptions to be alleviated by initial perceptions of trust and decision satisfaction.

Finally, initial perceptions of trust and decision satisfaction should also allay any concerns about the attractiveness of viable competing alternatives in the marketplace (Jones, Mothersbaugh and Beatty, 2000). We can understand how consumer satisfaction with an environment impacts on behavioural tendencies under different motivational orientations through the lens of perceptual control theory (Hershberger, 1989). When comparing consumers with and without a purchase task in an online purchasing setting, Wang et al. (2011) found that the impact of satisfaction with website characteristics (i.e. features) on the

propensity to search on other websites was significantly negative for task-oriented consumers but significantly positive for those who were task-free. Our study is solely concerned with the behaviour of task-oriented consumers browsing a new-to-market e-store.

Therefore, we hypothesize the following:

H1: The presence of website design features which offer a high level of *interactivity* (as compared to a low level) will *positively* influence consumer's perceptions of (a) trust and (b) decision satisfaction and *negatively* influence consumer's perceptions of (c) risk and (d) attractiveness of alternatives.

H2: The presence of website design features which offer a high level of *personalization* (as compared to a low level) will *positively* influence consumer's perceptions of (a) trust and (b) decision satisfaction and *negatively* influence consumer's perceptions of (c) risk and (d) attractiveness of alternatives.

2.3 Moderating effect of user's predisposition toward maximizing

Finally, usage of interactivity and personalization features depends on various factors such as their knowledge of such features, the online environment, or their knowledge or involvement with the product category concerned (Gupta et al., 2009; Liu and Shrum, 2009).

It may also depend on consumer motivation to identify the best possible alternative, their capacity to consider a significant amount of information, and their willingness to invest time and resources to process such information (Heitmann et al., 2007). Schwartz et al. (2002) categorize people on a continuum based on their propensity to maximize or satisfice.

Maximizers at one end aspire to find the optimal alternative and are willing to invest time and resources to use all possible sources of information and make the best possible choice, while satisficers at the other end seek to obtain a good enough option and are willing to minimize their information search effort as long as they can make a satisfying choice. Researchers

suggest that maximizers are more prone to experience post-purchase dissonance, regret, and dissatisfaction in the decision-making process than satisficers (Iyengar, Wells and Schwartz, 2006; Chowdhury, Ratneshwar and Mohanty, 2009; Carrillat, Ladik and Legoux, 2011). This is because maximizers experience apprehension when they face a large number of choices, anticipate regret for overlooking alternatives and perceive time pressure to make quick decisions, which leads to a sense of dissatisfaction (Chowdhury et al., 2009). They concentrate more on the decision-making process rather than the outcome (Schwartz et al. 2002), thus we are keen to examine the potential moderating influence of the maximizing trait on internal states of decision-making in our model rather than outcome constructs.

Häubl and Trifts (2000) argue that interactive decision aids (for example recommendation agents and comparison matrices) help buyers to efficiently screen a set of alternatives available in the online shopping environment. Since maximizers are more motivated than satisficers to browse available alternatives offered by an e-store while processing product information and comparing product attributes, they are more likely to use interactivity features to avoid any potential regret in post-purchase decisions. On the other hand, personalization decision aids that offer user-driven ability to control content or presentation format in response to the unique needs of individual buyers (Tam and Ho, 2006) allow consumers to reduce information overload and offer user-defined search facilities, product recommendations and promotional offers that suit individual needs (Montgomery and Smith, 2009; Thirumalai and Sinha, 2011). Since their primary motive is to find a good enough product, satisficers are more likely to benefit from personalization features than maximizers. According to Carrillat et al. (2011) a maximizer minimizes the value of past decisions and starts each decision afresh, which means not relying on browsing or purchasing history to reduce their level of information search activity. Based on these arguments, we hypothesize that:

H3: The *positive* association between the presence of website design features which offer a high level of *interactivity* (as compared to a low level) on consumer's perceptions of (a) trust and (b) decision satisfaction and the *negative* association between such a presence on perceptions of (c) risk and (d) attractiveness of alternatives will be *higher* for *maximizers* as compared to *satisficers*.

H4: The *positive* association between the presence of website design features which offer a high level of *personalization* (as compared to a low level) on consumer's perceptions of (a) trust and (b) decision satisfaction and the *negative* association between such a presence on perceptions of (c) risk and (d) attractiveness of alternatives will be *higher* for *satisficers* as compared to *maximizers*.

3. Method

3.1 Participants

Two hundred and seventy-three university students took part in this laboratory experiment. Drawn from undergraduate and postgraduate programmes at a British University based in the Midlands, they were recruited through electronic and printed announcements and flyers circulated throughout the campus and offered in return a modest shopping voucher. We chose students as participants because they represent a large homogeneous group with a very similar demographic profile (such as age, income, and education level), which ensures that the effects of factors such as age, wealth and social status are minimal and do not affect the findings of the experiment. According to Kardes (1998) and Sternthal, Tybout and Calder (1994), it is preferable when testing hypotheses to ensure homogeneity in subjects' characteristics. Moreover, students are familiar with the selected product class for the experiment, which was laptop computers, as well as online shopping environments. Pre-tests indicated that such assumptions were correct. To ensure the profile of students was

appropriate for the purchase task assigned in the online experiment, we used filter questions about time spent online per week, online purchases made in the last six months, and prior experience of online purchasing of computer hardware or software. Students who spend at least an hour every week online, made at least one online purchase in the last six months, and purchased a computer hardware/ software related product online were finally selected for the study. The study also used demography items such as gender, age, income and levels of their study to ensure participants of the right profile needed for the experiment are included. In addition, the use of a student sample in online experiments involving a technology purchase is prevalent in extant studies (such as Gupta et al. 2009; Schlosser, White and Lloyd, 2006). The sample was 63% female, mostly in the age group between 20-24 years, and with income less than £20,000 per annum. 73% of the participants were undergraduates. About 90% of them had been using the Internet for more than five years, 60% had spent more than 15 hours online every week, 45% had bought more than six products online in the previous six months, and 34% had already purchased computer hardware/software online.

3.2 Experimental procedure

A 2 (interactivity: high versus low) by 2 (personalization: high versus low) by 2 (predisposition towards maximizing: high versus low) between-subjects experimental design was used to study the hypothesized relationships. We manipulated the levels of interactivity and personalization features available to users in the experiment, but the participants' predisposition towards maximizing, being an individual trait, was measured instead.

In order to conduct the experiment, we designed a hypothetical e-store (called *Laptopmadness.com*), which sells laptop computers. To determine the design, we consulted the websites of several real-life online electronics stores selling laptop computers, as well as discussed the possible e-store features with information technology professionals. Based on this, we hired a professional creative web design and web development firm to design and

host the e-store. To manipulate the levels of interactivity and personalization features available to users, we created four versions of the e-store. To avoid any potential confounding effects of information overload, each version offered a limited and identical choice set of 14 products (with images and prices of laptops being taken from existing websites). The content of the customer services section was also identical. The manipulations were as follows: store A had high interactivity and high personalization features, store B had high interactivity but low personalization features, store C had low interactivity but high personalization features, whereas store D was low in both interactivity and personalization features.

We conducted the experiments in a controlled laboratory setting, where we assigned the participants to one of the four experimental conditions and asked them to sit at specific computers with pre-set experimental e-stores. To introduce them to the experiment, we explained that *Laptopmadness.com* was a new e-store selling laptop computers targeted at university students. We then gave them a paper booklet containing the instructions for the task to be undertaken in the experiment and a two-part questionnaire. Before browsing the website of their respective e-store they were given ten minutes to complete the first part, which measured their experience of using the Internet (i.e. how much time they spent online every week) and online shopping (i.e. the number of online purchases made in the last six months and prior experience of online purchases of computer hardware or software online), their product category knowledge and involvement with laptops and their predisposition toward maximizing. As mentioned earlier our study is concerned with the behavior of task-oriented users who visit a new-to-market e-store for the first time. Since the goal-directed task allocated was to choose a suitable laptop, we also wanted to instil a search goal towards the e-store (following Schlosser et al. 2006). We therefore asked them to write down two questions about the e-store. In the second part of the questionnaire we asked the participants to browse the website of their respective e-store for 5 minutes and specifically go through the

customer services section that explained delivery information, price guarantee, free return, and contact details about the e-store including the toll-free options. This section was identical across the four e-stores, and therefore provided a common baseline for e-store competence cues, which Gupta et al. (2009) argue is important to signal functional competence and create a platform suitable to study the incremental effects of the varying levels of manipulated website design features as observed in each individual e-store. Next we asked the participants to write down thoughts that came into their mind while browsing the e-store, which enabled us to capture thought protocols in keeping with Liu and Shrum's (2009) adoption of a standard thought elicitation procedure for assessing cognitive responses from the perspective elaboration likelihood model (ELM) of persuasion (Petty, Cacioppo and Schumann, 1983). We then asked the participants to choose a suitable laptop by carefully considering all the products, prices, consumer feedback reports as available in their respective e-store, before completing the remainder of the questionnaire, which measured their perceptions of the e-store's interactivity and personalization features and the four selected outcome constructs. On average, the entire experiment took about 30 minutes to complete. Based on the e-store allocations, 70 participants experienced store A, 66 experienced store B, 69 experienced store C, and 68 participants experienced store D.

3.3 Stimuli and manipulation check

We manipulated interactivity and personalization features of the website interface of the e-store based on literature (see Table 1 below), insights from professionals, and real-life e-stores selling laptops. Interactivity was manipulated through the provision of five additional features: (1) a product choice feature where a user can select a laptop based on a specific feature like the size of the hard drive; (2) a buying guide that gives product star ratings; (3) a comparison matrix where a user can compare between brands on a list of their own chosen features such as price; (4) customer reviews for popular products; and (5) glossaries that act

as jargon busters to understand various technical features. Put simply, the presence of these features indicated a high level of interactivity and their absence indicated a low level of interactivity.

Similarly, personalization was manipulated through the provision of using five additional features: (1) a user-driven feature to create a personalized wish list and shopping cart after registering with the e-store; (2) a transaction-driven feature to create a personal account and view recently browsed items or items added to the shopping cart; (3) a personalized email address and e-newsletter subscription; (4) a permission-based marketing option to receive promotional offers; and (5) a help-me-choose feature where user can choose brands based on salient product attributes.

INSERT TABLE 1 HERE

Next, we conducted the manipulation check with 16 students exposed to stores A and D (i.e. those on the extreme ends of the manipulation). We checked the manipulation of interactivity features by asking them to indicate the extent to which the website provided comparison features to collect more information about laptops (1= very little, 7= great deal). A t-test revealed a significant difference in mean values of perceived interactivity between the stores (store A: 5.84, store D: 2.35, $p < 0.05$). Then to check the manipulation of personalization features, we asked the participants to indicate the extent to which the website provided features to view recently browsed items (1= very little, 7= great deal). A t-test showed a significant difference in mean values of perceived personalization (store A: 5.94, store D: 2.12, $p < 0.05$). Therefore, the manipulation of the web design features was successful and the four websites were ready for use in the final data collection stage.

3.4 Measures

We used a range of existing scales to measure the key constructs in the experiment with responses collected using a seven-point point Likert scale (1= strongly disagree, 7= strongly

agree) for all items as follows: perceived interactivity (Liu, 2003; McMillan and Hwang, 2003; Song and Zinkhan, 2008); perceived personalization (Lee and Park, 2009; Thirumalai and Sinha, 2011; Wolfenbarger and Gilly, 2003); trust (Cho, 2006); decision satisfaction (Heitmann et al., 2007) ; perceived risk (Chen and He, 2003); attractiveness of alternatives (Jones et al., 2000) ; and predisposition toward maximizing (Heitmann et al., 2007).

Construct reliabilities were acceptable with Cronbach's alpha exceeding 0.7 for all constructs (Nunally, 1978). Table 2 shows the construct reliabilities and inter-correlations.

In order to explore differences between maximizers and satisficers, we used the median split of the composite score for the predisposition toward maximizing construct to separate the study participants into the two discrete categories of maximizer (n= 122) and satisficer (n=151), which are represented by 1 and 0 respectively in further analyses.

Since we had chosen to manipulate the two independent variables of interactivity and personalization in the experimental design, we also acknowledged that the use and comprehension of advanced website design features depends on a participant's experience of using the Internet and making online purchases. Therefore, we included two control variables to account for individual differences: internet experience operationalized as the amount of time an individual spends online each week (Liu and Shrum, 2009); and online purchase experience operationalized as the number of online purchases made by an individual in the previous six months (Schlosser et al., 2006). (See Appendix for a list of the measures used in the questionnaire).

INSERT TABLE 2 HERE

4. Results and Discussion

4.1 Methods of data analysis

The analysis of data was done in two stages. In the first stage, the study used a 2 (interactivity: high vs. low) X 2 (personalization: high vs. low) X 2 (predisposition towards

maximizing: maximizers vs. satisficers) MANCOVA to explore the effects of the manipulations on four outcome constructs (trust, decision satisfaction, perceived risk and attractiveness of alternatives) with two covariates (internet experience and online purchase experience). However, the influence of the two covariates (internet experience: $F= 0.47$, $p>0.10$, partial eta square= 0.008; and online purchase experience: $F= 0.04$, $p>0.10$, partial eta square= 0.001) was not significant and hence we dropped them from further analysis to obtain a more parsimonious model. Therefore, the study used 2 X 2 X 2 MANOVA followed by four univariate ANOVA's for each of the four outcome constructs. In the second stage, the study analysed the thought protocols obtained from the participants for better understanding of the relationship between the constructs. Table 3 below shows the means for the outcome constructs for the two user groups. It shows that higher levels of interactivity and personalization features offered by the e-stores improve users' perceptions of trust and decision satisfaction. They also reduce users' perceived risk of purchase from an unknown e-store and their intentions to look for alternative avenues of purchase. This shows that on the whole, offering higher levels of these features is beneficial for the e-store to improve its customer perceptions. However, there is a significant difference between the user characteristics. Maximizers perceive higher trust, and have lower perceived risk and a lower intention to search for alternative e-stores as compared to the satisficers. On the other hand, satisficers perceive a higher sense of satisfaction in their decision-making as compared to the maximizers. This follows the conceptualizations of maximizer characteristics as proposed by Schwartz et al. (2002).

INSERT TABLE 3 HERE

4.2 Results

Table 4 shows the combined results of the MANOVA and ANOVA analyses.

Combining it with Table 3, the results show that there is a positive (increasing) influence of interactivity on consumer's perception of trust (Mean for high interactivity = 5.15, Mean for low interactivity = 4.70, $F(1, 265) = 22.39, p < .001$) and decision satisfaction (Mean for high interactivity = 4.58, Mean for low interactivity = 4.42, $F(1, 265) = 19.10, p < .001$). It also shows that there is a negative (decreasing) influence of interactivity on consumer's perception of risk (Mean for high interactivity = 2.92, Mean for low interactivity = 3.49, $F(1, 265) = 55.67, p < .001$) and attractiveness of alternatives (Mean for high interactivity = 4.16, Mean for low interactivity = 4.74, $F(1, 265) = 20.67, p < .001$). Higher scores for trust and decision satisfaction represent more favourable perceptions toward the e-store, as do lower scores for perceived risk and attractiveness of alternatives. Post-hoc test were not required as we had only two groups for each factor. Thus, the results support H1a-H1d.

Similarly, the results show that there is a positive influence of personalization on consumer's perception of trust (Mean for high personalization = 5.08, Mean for low personalization = 4.78, $F(1, 265) = 9.54, p < .05$) and decision satisfaction (Mean for high personalization = 4.52, Mean for low personalization = 4.21, $F(1, 265) = 10.11, p < .05$). They also show that there is a negative influence of personalization on consumer's perceived risk (Mean for high personalization = 3.33, Mean for low personalization = 3.32, $F(1, 265) = 0.01, p > .05$, not significant) and attractiveness of alternatives (Mean for high personalization = 4.23, Mean for low personalization = 4.67, $F(1, 265) = 11.72, p < .05$). Thus, the results support H2a, H2b, and H2d, but do not support H2c.

Next, the interaction effects of predisposition toward maximization and interactivity on trust $F(1, 265) = 45.69, p < .001$, decision satisfaction $F(1, 265) = 82.72, p < .001$, perceived risk $F(1, 265) = 41.38, p < .001$, and attractiveness of alternatives $F(1, 265) = 21.95, p < .001$. An examination of the means (Table 3 and Figure 2) show that interactivity features lead to

stronger positive and negative effects on the four outcome constructs for maximizers as compared to satisficers. This supports H3a, H3b, H3c and H3d.

Similarly, the effects of predisposition toward maximization and personalization on trust $F(1, 265) = 0.15, p > .10$ (not significant), decision satisfaction $F(1, 265) = 1.61, p > .10$ (not significant), perceived risk $F(1, 265) = 55.67, p < .001$, and attractiveness of alternatives $F(1, 265) = 68.68, p < .001$. However, Figure 2 and Table 3 shows that trust and decision satisfaction for satisficers increase at a greater rate than for maximizers when the provision of personalization features increases from low to high. Although there is a directional relationship, this does not reach statistical significance with the result that there is mixed support for H4a and H4b. An examination of the means (Table 3 and Figure 2) for perceived risk and attractiveness of alternatives show that personalization features lead to stronger negative effects for satisficers as compared to maximizers. This supports H4c and H4d.

INSERT TABLE 4 HERE

Finally, in addition to the hypotheses testing, we also undertook an analysis of the participants' thought protocols, which were captured immediately after browsing their respective e-store for the first time. We independently coded the protocols from two of the experimental conditions, store A (high interactivity and high personalization features) and store D (low interactivity and low personalization features), since they represented the strongest contrast in terms of the level of web design features employed and provided an opportunity to further explore their first impressions of the e-store. Inter-coder reliability was high (86 percent agreement) and discrepancies were subsequently discussed and resolved. From the selected protocols provided in Table 5 it can be seen overall that participants commented on ease of navigation, site attractiveness, interactive functions for search, advice and product comparisons, as well as the product range. Both stores were criticized for offering a limited choice set offered. Thoughts about store A (with high levels

of interactivity and personalization features) were positive, while thoughts about store D (with low levels of interactivity and personalization features) were negative. This suggests that the participants' first impressions of their allocated e-store are influenced by the presence of task-facilitative e-store features.

Insert Table 6 here

4.2 Discussion

So far, limited attention has been paid by researchers to understanding the psychological antecedents of website conversion. The study sheds light on what is going on in consumers' minds when they encounter a new-to-market e-store for the first time and potentially engage in choosing a product to purchase from this vendor. This study addresses two research issues: (1) understanding the impact of the level of provision of two specific cues in the website interface (i.e. interactivity and personalization features) on users' internal psychological decision-making states (trust formation and decision satisfaction) and decision-making outcomes (perceived risk and attractiveness of competing alternatives); and (2) how individual differences in the user (their propensity to maximize) can influence their judgements in response to the store environment resulting in approach or avoidance behaviors.

The most important finding of the study is that both interactivity and personalization features have a significant positive influence on consumers' trust and decision satisfaction, as well as on subsequent conative responses. Prior research finds a positive relationship between interactivity features of e-stores and outcomes such as attitude towards the web site and the product, satisfaction, and loyalty (Song and Zinkhan, 2008; Liu and Shrum, 2009; Sicilia et al., 2005). In addition, extant studies show a positive relationship between personalization features and outcomes such as attitude towards the web site and satisfaction with transaction (Tam and Ho, 2006; Thirumalai and Sinha, 2011). However, the influence of interactivity

(such as ability to compare products, use of buying guides) and personalization (such as creating wish list, get personalized emails) on choice making process rather than post-purchase stage is largely ignored. The current study explores this by simulating a new-to-market e-store. The results from Tables 3 and 4, and the protocol analysis of customer comments in Table 5 clearly show that the availability of advanced interactivity and personalization features improves customers' trust and satisfaction with decision making, and reduces their risk perception and search intention for alternatives towards an unknown e-retailer. However, the results do not show a significant impact of personalization on customers' perceived risk. We provide the following explanations for this apparent contradiction. Gupta et al. (2009) explain how trust initially develops between customers and a new e-retailer by using the functional design features which positively influences customers' assessment of seller's assistive intent. However, a positive perception towards the unknown e-retailer's assistive intent may not be convincing enough for the customers to alleviate their perceived risk of buying from an unknown, new-to-market e-store. The sense of vulnerability and uncertainty persists when the product is high involvement and personal like laptop in this case (Berry, 1995). Overall, the results show that even with a limited product choice offered by the new-to-market e-retailer, higher levels of interactivity and personalization features can satisfy customers in their decision making process. Results from protocol analysis validate this finding as well.

Next, this study examines how web design features influence customers' choice-process satisfaction. The results show that both interactivity and personalization positively influence customers' decision satisfaction. Extant literature highlights that the limitation of choice option decreases choice-process satisfaction (Zhang and Fitzsimons, 1999). However, in our study, we observe that even with a limited product choice offered by the new-to-market e-

retailer, higher levels of interactivity and personalization features can satisfy customers in their decision making process.

Finally, the study examines how an individual's predisposition toward maximizing (maximizers versus satisficers) influences their use of interactivity and personalization tools. The results show that higher levels of interactivity features influence the decision process of maximizers more, whereas satisficers make more use of advanced personalization features offered by the e-retailer. This follows the argument that maximizers want more control on product related information; reduce their perceived risk and possible regret, and make an informed choice (Chowdhury et al., 2009; Heitmann et al., 2007) and advanced interactivity features can provide them with the necessary decision support. On the other hand, satisficers want to reduce information overload (Jacoby et al., 1974) and choose a good enough product. Personalization features offer them the option to customize the information content as per their need.

4.3 Theoretical implications

This study contributes to the literature on the effects of task-facilitative information features (interactivity and personalization) features on consumers' browsing experience and choice-making strategies in three ways. First, the results show that both interactivity and personalization features have a significant positive influence on consumers' trust and decision satisfaction, as well as on subsequent conative responses. This finding supports prior research but our study makes a novel attempt in a simulation of a real-life e-store of examining the impact of interactivity and personalization features on browsing outcomes. Specifically the availability of advanced design features improves consumers' trust and satisfaction with decision making, reduces their risk perception and attractiveness to search alternatives towards an unknown e-retailer except where personalization features fails to reduce perceived risk of buyers. While Gupta et al. (2009) explain how trust initially

develops between customers and a new e-retailer through the use of functional features that positively influence customers' assessment of seller's assistive intent, it may be the case that a positive perception in this respect will not be convincing enough to diminish their sense of risk to purchase from an unknown e-store.

Second, the results show that the perceived value of websites with higher levels of interactivity and personalization features are higher and have significant influence on the browsing outcomes. Figure 2 demonstrates that although the ability and motivation of consumers to use the advanced web design features vary, their perception towards such features improves when the e-retailer actively invests in the web design technology.

Third, higher levels of interactivity features influence the decision process of maximizers more than satisficers. This follows the argument that maximizers want more control on product-related information in order to reduce their perceived risk and possible regret, and make an informed choice (Carrillat et al., 2011; Chowdhury et al., 2009; Heitmann et al., 2007). Advanced interactivity features can provide them with the necessary decision support. By comparison, satisficers make more use of advanced personalization features offered by the e-retailer than maximizers. Since they want to reduce information overload (Jacoby et al., 1974), personalization features offer them the option to customize the information content according to their need so that they can choose a good enough product. Overall this study establishes how best to utilize interactivity and personalization features to develop initial trust and pre-purchase satisfaction in accordance with the information search motivation of individual consumers, and contributes to the literature on the maximizing trait by examining its influence in the hitherto unexplored context of online retailing.

4.4 Managerial implications

The results of this research offer guidance to managers of new-to-market or relatively unknown e-retailers on how to use website design features to influence site attractiveness and

website stickiness amongst the prospective buyers. Since these e-retailers cannot use other marketing signals such as pre-purchase experience or word-of-mouth from an existing customer base to attract and retain prospective buyers, it is imperative for them to use higher levels of task-facilitative interactivity and personalization features to establish a sense of initial trust and choice satisfaction amongst browsers, which will increase the likelihood of using such e-retailers on a trial basis. Initially they have to treat every visitor to their site as a potential customer, as they are not in a position to discriminate between different types of visitors. However, the results also suggest that rather than offering the same mix of such features to every prospective customer, e-retailers should tailor website content to suit the information search motivation of maximizers and satisficers. While established e-retailers can employ site-centric clickstream data to experiment with website designs in order to identify those which will generate the most clicks, encourage extended browsing and result in increased purchase conversion, internet-based retail start-ups are only beginning to gather such data. Nonetheless, recent innovative research at MIT has demonstrated the potential for website conversion rates to increase after morphing websites to match individual cognitive styles (Urban, Hauser, Liberali, Braun and Sultan, 2009). Thus dynamic web design features can potentially be in-built to expose maximizers to a version of the website with higher levels of interactivity features (such as comparison matrices and glossaries) and satisficers to one with higher levels of personalization features (such as personalized newsletters and tailor-made preferences based on past browsing experiences).

4.5 Limitations and directions for future research

With an experimental methodology there is always the issue of ecological validity. We hired a professional creative web design and web development firm to design our fictitious e-store so that we could simulate the online scenario in which prospective buyers visit the website of a new-to-market e-retailer for the first time. Employing an experimental design offers the

advantages of high levels of control and ability to manipulate variables individually, however in our study we only tested the effects of a limited number of interactivity and personalization features. Future work could consider other features which could be used to manipulate the website interface. In addition, data for the study was collected after the first visit of the participants to the experimental stores. Future research can also make the experimental design on a longitudinal scale where data is collected after repeat visits so that the participants get enough exposure to all the manipulated features.

Another limitation is that although university students represented the target audience for our fictitious e-store, such a sample restricts the generalizability of the results. Nonetheless, students are experienced and frequent web users (Geissler et al., 2006), and as previously mentioned, are widely used as samples in online experiments involving a technology purchase. There is also the drawback that there was only one product category in our study, in this case laptop computers. These are complex products of a utilitarian rather than a hedonic nature, which highly involve consumers when they are making a buying decision. It would be worthwhile replicating the study for other types of high involvement purchases to confirm the generalizability of the results. Furthermore, our e-store offered a limited choice set, which is typical of experimental studies. So it would be interesting to study the impact of offering a larger choice set to the first time visitors. Also, the experimental task of choosing a high involvement product to purchase from the e-store involved utilitarian browsing to search for relevant information through goal-directed behavior under time pressure rather than hedonic browsing for pleasure. Future scenarios might consider both types of browsing searches with and without time constraints. Other moderator variables could also be considered such as buyers' level of product involvement or risk averseness as they would result in different user profiles and deepen our understanding of the relationship between the web design features and perceptions of trust and decision satisfaction.

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Appendix

Insert Table A1 here.

References

- Adomavicius, G., Tuzhilin, A., 2005. Personalization technologies: a process-oriented perspective. *Commun. ACM.* 48, 83-90.
- Ansari, A., Mela, C. F., 2003. E-Customization. *J. Marketing Res.* XL, 131-145.
- Ariely, D., 2000. Controlling the information flow: effects on consumers' decision making and preferences. *J. Consum Res.* 27. 233-248.
- Ballantine, P.W., 2005. Effects of interactivity and product information on consumer satisfaction in an online retail setting. *Int. J. Retail and Dist. Manag.* 33, 461-471.
- Bart, Y., Shankar, V., Sultan, F., Urban, G.L., 2005. Are the drivers and role of online trust the same for all web sites and consumers? A large-scale exploratory empirical study. *J. Marketing.* 69, 133-152.
- Berry, L.L., 1995. Relationship marketing of services - growing interest, emerging perspective. *J. Acad. Market. Sci.* 23, 236-245.
- Berthon, P.L., Pitt, L.F., Watson, R.T., 1996. Marketing communication and the world wide web. *Bus. Horizons* 39, 151-163.
- Carrillat, F., Ladik, D., Legoux, R., 2011. When the decision ball keeps rolling: an investigation of the Sisyphus effect among maximizing consumers. *Market. Lett.* 22 283-296.
- Chen, R., Feng H., 2006. Examination of brand knowledge, perceived risk and consumers' intention to adopt an online retailer. *TQM Bus. Excellence.* 14, 677-693.
- Chevalier, A., Kicka, M., 2006. Web designers and web users: influence of the ergonomic quality of the website on the information search. *Int. J. Hum-Comput. St.* 64, 1031-1048.

- Cho, J., 2006. The mechanism of trust and distrust formation and their relational outcomes. *J. Retailing*. 82, 25-35.
- Chowdhury, T. G., Ratneshwar, S., Mohanty, P., 2009. The time-harried shopper: exploring the differences between maximizers and satisficers. *Market. Lett.* 20, 155-167.
- Chung, H., Zhao, X., 2004. Effects of perceived interactivity on web site preference and memory: role of personal motivation. *J. Comput-Mediat. Comm.* 10. 00-00.
- Corritore, C.L., Kracher, B., Wiedenbeck, S., 2003. Online trust: concepts, evolving themes: a model. *Int. J. Hum-Comput. St.* 58, 737-358.
- Cyr, D., Head, M., 2013. The impact of task framing and viewing timing on user website perceptions and viewing behavior. *Int. J. Hum-Comput. St.* 71, 1089-1102.
- Dholakia, R.R., Zhao, M., 2010. Effects of online store attributes on customer satisfaction and repurchase intentions. *Int. J. Retail. and Dist. Manag.* 38, 482-496.
- Dholakia, R.R., Zhao, M., 2009. Retail web site interactivity. *Int. J. Retail. and Dist. Manag.* 37, 821-838.
- Donovan, R.J., Rossiter, J.R., 1982. Store atmosphere: an environmental psychology approach. *J. Retail.* 70, 283-294.
- Dowling, G.R., Staelin, S., 1994. A model of perceived risk and intended risk-handling activity. *J. Consum. Res*, 21, 119-134.
- Engel, J.F., Blackwell, R.D., Kollat, D.T., 1978. *Consumer Behavior*, The Dryden Press, Hinsdale, IL.

- Fitzsimons, G.J., Greenleaf, E.A., Lehmann, D.R., 1997. Decision and consumption satisfaction: implications for channel relations. Working paper, Columbia Business School, Columbia University, New York, NY.
- Fornell, C., Johnson, M.D., Anderson, E.W., Cha, J., Bryant, B.E., 1996. The American customer satisfaction index: nature, purpose, and findings. *J. Marketing*. 60, 7-18.
- Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. *J. Marketing Res.* XVIII , 39-50.
- Ganesh, J. Reynolds, K.E., Luckett, M., Pomirleanu, N., 2010. Online shopper motivations, and e-store attributes: an examination of online patronage behavior and shopper typologies. *J. Retailing*. 86, 106-115.
- Geissler, G.L., Zinkhan, G.M., Watson, R.T., 2006. The influence of home page complexity on consumer attention, attitudes, and purchase intent. *J. Advertising*. 35, 69-80.
- Geissler, G.L., Zinkhan, G.M., Watson, R.T., 2001. Web Home Page Complexity and Communication Effectiveness. *J. Assoc. Inform. Syst.* 2, 1-46.
- Gist, M.E., Mitchell, T.R., 1992. Self-efficacy: a theoretical analysis of its determinants and malleability. *Acad. Manag. Rev.* 17, 183-211.
- Greer T.H., Murtaza, M.B., 2003. Web personalization: the impact of perceived innovation characteristics on the intention to use personalization. *J. Comput. Inform. Syst.* 43, 50-55.
- Grewal, D., and Levy, M., 2009. Emerging issues in retailing research. *J. Retailing*. 85, 522-526.
- Gupta, P., Manjit S., Yadav, M.S., Varadarajan, R., 2009. How task facilitative interactive tools foster buyers' trust in online retailers: a process view of trust development in the electronic marketplace. *J. Retailing*. 85, 159-176.

- Häubl, G., Trifts, V., 2000. Consumer decision making in online shopping environments: the effects of interactive decision aids. *Market. Sci.* 19, 4-22.
- Hausman, A.V., Siekpe, J.S., 2009. The effect of web interface tools on consumer online purchase intentions. *J. Bus. Res.* 62, 5-13.
- Heitmann, M., Lehmann, D.R., Herrman, A., 2007. Choice goal attainment and decision and consumption satisfaction. *J. Marketing Res.* XLIV, 234-250.
- Hershberger, W.A., 1989. *Volitional action: conation and control*. North-Holland, Amsterdam.
- Hoffman, D.L., Novak, T.P., 1996. Marketing in hypermedia: computer-mediated environments: conceptual foundations. *J. Marketing.* 60, 50-68.
- Hu, L-T., Bentler, P.M., 1999. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct. Equ. Modeling.* 6, 1-55.
- Huang, E., Huang, Y-T., 2013. Interactivity and identification influences on virtual shopping. *Int. J. Electron. Comm. Stud.* 4, 305-312.
- Iyengar, S.S., Wells, R.E., Schwartz, B. 2006. Doing better but feeling worse: looking for the “best” job undermines satisfaction. *Psychol. Sci.* 17, 143-150.
- Jacoby, J., Speller, D. E., Kohn, C.A., 1974. Brand choice behavior as a function of information load. *J. Marketing Res.* XI , 63-69.
- Jarvenpaa, S., Tractinsky, N., Vitale, M., 2000. Consumer trust in an internet store, *Inform. Technol Manage*, 1, 45-71.

- Johnson, M.S., Sivadas, E., Garbarino, E., 2008. Customer satisfaction, perceived risk and affective commitment: an investigation of directions of influence. *J. Serv. Mark.* 22, 353-362.
- Jones, M.A., Mothersbaugh, D.L., Beatty, S.E., 2000. Switching barriers and repurchase intentions in services. *J. Retailing.* 76, 259-274.
- Kardes, F.R. (1996), In defense of experimental consumer psychology. *J. Con. Psych.*, 5, 279-296.
- Koufaris, M., Hampton-Sosa, W., 2004. The development of initial trust in an online company by new customers. *Inform. Manage.* 41, 377-397.
- Lee, E-J., Park, J.K., 2009. Online service personalization for apparel shopping. *J. Retailing Consum. Serv.* 16, 83-91.
- Liu, Y., Li, H., Hu, F. (2013). Website attributes in urging online impulse purchase: an empirical investigation on consumer perceptions. *Decis. Support Syst.* 55, 829-837.
- Liu, Y., Shrum, L. J., 2009. A dual-process model of interactivity effects. *J. Advertising.* 38, 53-68.
- Liu, Y., Shrum, L. J., 2002. What Is Interactivity and Is It Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness. *J. Advertising* 31, 53-64.
- Liu, Y., 2003. Developing a scale to measure the interactivity of web sites. *J. Advertising Res.* 43, 207-216.

- Marketing Sherpa (2012). Marketing research chart: Average conversion by industry.
Available from: <http://www.marketingsherpa.com/article/chart/average-website-conversion-rates-industry> (accessed on 11th June, 2015).
- McKnight, D.H., Choudhury, V., Kacmar, C., 2002. The impact of initial consumer trust on intentions to transact with a web site: a trust building model. *J. Strategic Inf. Syst.* 11, 297-323.
- McMillan, S.J., Hwang, J.S., 2002. Measures of perceived interactivity: an exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity. *J Advertising.* 31, 29-42.
- Macias, W. 2003. A beginning look at the effects of interactivity, product involvement and web experience on comprehension: brand web sites as interactive advertising. *J. Curr. Iss. Res. Advert.* 25, 31-44.
- Marsh, H.W., Hovecar, D., 1985. Application of confirmatory factor analysis to the study of self-concept: first and higher order factor models and their invariance across groups. *Psychol. Bull.* 97, 562-82.
- Mehrabian, A., Russell, J.A., 1974. *An approach to environmental psychology.* The MIT Press, Cambridge, MA:
- Montgomery, A.L., Smith, M.D., 2009. Prospects for personalization on the internet. *J. Interact. Mark.* 23, 130-137.
- Morrison, D.E., Firmstone, J., 2000. The social function of trust and implications for e-commerce. *Int. J. Advert.* 19, 599-623.

- Mummalaneni, V., 2005. An empirical investigation of web site characteristics, consumer emotional states and on-line shopping behaviors. *J. Bus. Res.* 58, 526-532.
- Nunnally, J.C. 1978. *Psychometric theory*, Second ed. McGraw-Hill., New York:
- O'Keefe, R.M., McEachern, T., 1998. Web-based customer decision support systems. *Commun. ACM.* 41, 71-78.
- Oliver, R.L. 1980. A cognitive model of the antecedents and consequences of satisfaction decisions, *J. Marketing Res.*, XVII, 460-469.
- Petty, R. E., Cacioppo, J. T., and Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *J. Consum. Res.*, 10, 135-146.
- Perdue, B.C., Summers, J.O., 1986. Checking the success of manipulations in marketing experiments. *J. Marketing Res.*, XXIII, 317-326.
- Podsakoff, P.M., Organ, D.W., 1986. Self-reports in organizational research: problems and prospects. *J Manage.* 12, 531-544.
- Rosen, S., 2001. Sticky website is key to success. *Commun. World.* 18, 36.
- Schlosser, A.E., White, T.B., Lloyd, S.M., 2006. Converting web site visitors into buyers: how web site investment increases consumer trusting beliefs and online purchase intentions. *J. Marketing.* 70, 133-148.
- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., Lehman, D.R., 2002. Maximizing versus satisficing: happiness is a matter of choice. *J. Pers. Soc. Psychol.* 83, 1178-1197.

- Sharma, S., Durand, R.M., Oded G-A., 1981. Identification and Analysis of Moderator Variables. *J. Marketing Res.* XVIII, 291-300.
- Sicilia, M., Ruiz, S., Munuera, J.L., 2005. Effects of interactivity in a web site. *J Advertising.* 34, 31-45.
- Silverman, B.G., Bachann, M., Al-Akharas, K., 2001. Implications of buyer decision theory for design of e-commerce websites. *Int. J. Hum-Comput. St.* 55, 815-844.
- Song, J.H., Zinkhan, G.M., 2008. Determinants of perceived web site interactivity. *J. Marketing.* 72, 99-113.
- Sternthal, B., Tybout, A., Calder, B.J. (1994), Experimental design: Generalization and theoretical explanation. In R.P. Bagozzi (Ed.), *Principles of Marketing Research* (pp. 195-223). Cambridge, MA: Blackwell.
- Steuer, J. 1992. Defining virtual reality: dimensions determining telepresence. *J. Commun.* 42, 73-79.
- Stewart, D., Pavlou, P.A., 2002. From consumer response to active consumer: measuring the effectiveness of interactive media. *J. Acad. Market. Sci.* 30, 376-396.
- Sweeney, J. C., Soutar, G. N., Johnson, L. W., 1999. The role of perceived risk in the quality-value relationship: a study in a retail environment. *J. Retailing,* 75, 77-105.
- Tam, K. Y., Ho, S. Y. 2006. Understanding the impact of web personalization on user information processing and decision outcomes. *MIS Quart.* 30, 865-890.
- Teo, H.H., Oh, L-B., Liu, C., Wei, K-K., 2003. An empirical study of the effects of interactivity on web user attitude. *Int. J. Hum-Comput. St.* 58, 281-305.

- Thirumalai, S. and Sinha, K. K. 2009. Customization strategies in electronic retailing: implications of customer purchase behaviour. *Decision Sci.* 40, 5-36.
- Tuch, A.N., Presslauer, E.E., Stöcklin, M., Opwis, K., Bargas-Avila, J.A., 2012. The role of visual complexity and prototypicality regarding first impression of websites: Working towards understanding aesthetic judgements. *Int. J. Hum-Comput. St.* 70, 794-811.
- Urban, G.L., Hauser, J.R., Liberali, G., Braun, M., Sultan, F., 2009. Morph the web to build empathy, trust and sales. *MIT Sloan Management Review*, 50, 53-61.
- Vesanen, J., 2007, What is personalization? A conceptual framework. *Eur. J. Marketing*, 41 409-418.
- Voorveld, H.A.M., Neijens, P.C., Smit, E.G., 2011. The relation between actual and perceived interactivity. *J Advertising*, 40, 77-92.
- Wang, Y.J., Minot, M.S., Wei, J., 2011. Aesthetics and the online shopping environment: understanding consumer responses. *J. Retailing*. 87, 46-58.
- 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. *J. Bus. Res.* 63, 935-942.
- Wolfenbarger, M., Gilly, M.C., 2003. ETailQ: dimensionalizing, measuring, and predicting etail quality. *J Retailing*. 79, 183-198.
- Wolfenbarger, M., Gilly, M.C. 2001. Shopping online for freedom, control and fun. *Calif. Manage. Rev.* 43, 34-55.

Wu, L-L., Lin, J-Y., 2006. The quality of consumers' decision-making in the environment of e-commerce. *Psychol. and Market.* 23, 297-311.

Yeh, Y.S., and Li, Y.M., 2014. Design-to-lure in the e-shopping environment: a landscape preference approach. *Inform. Manage.*(in Press).