



ASSOCIATION FOR CONSUMER RESEARCH

Labovitz School of Business & Economics, University of Minnesota Duluth, 11 E. Superior Street, Suite 210, Duluth, MN 55802

The Role of Exploration in Creating Online Shopping Value

Catherine Demangeot , University of Strathclyde, UK

Amanda J. Broderick, Coventry University, UK

This study draws attention to the integrating role of exploration in online shopping. Online, the shopping experience, product search and product information search all happen through the exploration of different pages of a website. A survey among 301 respondents who first navigated an online bookstore for eight minutes was analyzed using structural equation modeling. Results show that exploratory potential (the perceived ability of a retail website to provide scope for further exploration) plays a central role in creating utilitarian and hedonic value, which in turn contribute to site commitment. Further, sense-making potential only produces utilitarian value if mediated by exploratory potential, thus further reinforcing the notion that exploratory potential is the real 'killer attribute' of a retail website.

[to cite]:

Catherine Demangeot and Amanda J. Broderick (2009) , "The Role of Exploration in Creating Online Shopping Value", in NA - Advances in Consumer Research Volume 36, eds. Ann L. McGill and Sharon Shavitt, Duluth, MN : Association for Consumer Research, Pages: 473-481.

[url]:

<http://www.acrwebsite.org/volumes/14412/volumes/v36/NA-36>

[copyright notice]:

This work is copyrighted by The Association for Consumer Research. For permission to copy or use this work in whole or in part, please contact the Copyright Clearance Center at <http://www.copyright.com/>.

The Role of Exploration in Creating Online Shopping Value

Catherine Demangeot, University of Strathclyde Business School, UK

Amanda J. Broderick, Coventry University Business School, UK

ABSTRACT

This study draws attention to the integrating role of exploration in online shopping. Online, the shopping experience, product search and product information search all happen through the exploration of different pages of a website. A survey among 301 respondents who first navigated an online bookstore for eight minutes was analyzed using structural equation modeling. Results show that exploratory potential (the perceived ability of a retail website to provide scope for further exploration) plays a central role in creating utilitarian and hedonic value, which in turn contribute to site commitment. Further, sense-making potential only produces utilitarian value if mediated by exploratory potential, thus further reinforcing the notion that exploratory potential is the real 'killer attribute' of a retail website.

INTRODUCTION

This paper demonstrates the importance of exploratory potential for online research by examining its explanatory power on shopping behavior. Environmental psychologists Kaplan and Kaplan (1982) suggest that exploration is, alongside sense-making, a major human need in an environment. Thus, if one considers the screen on which the successive pages of a retail website are displayed as an environment, consumers perceive the succession of pages in terms of their exploratory potential and their sense-making potential (Demangeot and Broderick, forthcoming). Exploratory potential is defined as the perceived ability of the site to provide scope for further exploration over and beyond what is visible to consumers on the page they are viewing, and sense-making potential is defined as the perceived ability of a retail website to facilitate the consumer's orientation, navigation and task accomplishment.

Exploration can apply to the retail environment, the shopping experience, the product range available on the website, or the information available about a particular product. It can happen at the level of an individual page, whose different components and overall design can be inviting, and at the level of the whole site, when the depth of content prompts the discovery of more material and the overall 'feel' of the site enriches the navigation experience. Thus, this paper contends that exploration is an important concept in studying online consumer behavior, because it reflects the manner in which, fundamentally, the shopping experience and product information search take place in the online context, as a result of the internet medium's characteristics.

Most studies of online consumer behavior have echoed discrete streams of the consumer behavior literature, focusing on separate elements of the overall shopping experience. In particular, Hoffman and Novak (1996) discuss the distinction between surfers and goal-directed online users, echoing the distinction made by Bloch, Ridgway, and Sherrell (1989) between browsing and pre-purchase information search. Klein (1998) and Li, Daugherty, and Biocca (2001) have considered the manner in which products may be experienced differently online and offline, adding to the literature concerned with different types of product experiences (Hoch, 2002; Singh, Balasubramanian, and Chakraborty, 2000; Wright and Lynch, 1995). Several authors have also considered the atmospheric qualities of online shopping environments (e.g. Eroglu, Machleit, and Davis, 2003; Richard, 2005), leaning on the extensive body of literature on the use of the 'silent language' of environmental cues to produce desirable consumer responses (Kotler,

1973; Mehrabian and Russell, 1974; Turley and Milliman, 2000). However, none of these studies takes account of the fact that in an online context, the processes of shopping, assessing product range and gathering product information are one and the same, consisting of clicks and searches.

In this paper, the concept of exploration is used to integrate these different streams, reflecting the reality that when shopping online, information search, product experience and store navigation are performed in the same manner. The paper investigates the behavioral consequences of the exploratory potential of a retail website. It first outlines the study's conceptual framework, before presenting the method and measures chosen. The main results are reported and implications are drawn. Finally, limitations are acknowledged and directions for further research suggested.

CONCEPTUAL FRAMEWORK

Online exploration

The rationale for studying the concept of online exploration stems from the common manner in which online, consumers shop, navigate the virtual environment, find products and gather product information.

Online, the process of acquiring product information and shopping generally is fundamentally different from offline. Because it is not possible to survey a whole website at once, consumers have to find their way, form impressions and gather information by progressing through consecutive clicks and searches. Besides, electronic data is stored and can be retrieved in a manner which gives shoppers access to quasi-unlimited amounts of information from a variety of sources (the marketer, other users, experts, opinion leaders etc.). The data can be accessed immediately (via competently-executed searches) or can facilitate, through a series of hyperlinks, in-depth information gathering, to browse or make a purchase decision. Thus, the scrolling up or down of long pages or the clicking of successive hyperlinks are different forms of exploration, of the virtual shop, of the product range or of a particular product's information. Offline, the gathering of information from different sources is carried out as a series of discrete activities (reading a review, visiting a shop to ask questions to the sales assistant, consulting a colleague or friend); it involves different people and takes place in different locations. Shopping online can encompass, in the same locus, the simultaneous performance of activities which, offline, are separate in time and place. The ability to do this is likely valued by consumers, since it greatly reduces the effort and costs of searching for information (Nelson, 1974).

Information can be accessed at very little cost and in any sequence, because searches can return both the expected product or information, and a series of alternatives, and because individual product pages often provide links to other products. Thus, the distinction between browsing and pre-purchase information search is less pronounced online than offline. Consequently, the distinction in the literature between browsing and pre-purchase information search (Bloch et al., 1989), may be less relevant online. In fact, consumers likely switch from one mode to the other during the course of one shopping navigation, committing some information to memory (or, for instance, to the website's 'wish list') while concurrently deciding to make a particular purchase. The concept of exploration encompasses both motives.

The activity of shopping and the products for sale are experienced differently online and offline in two major ways. First, the online retail environment itself is less intuitive than a real shop; it is only revealed to the consumer one page at a time, and navigated virtually, with the help of informational cues. Hence, a sense of the 'depth' of the website and its product range is acquired not through a visual assessment of the volume of the store or a walk around the aisles, but by calling up a succession of two-dimensional pages. To move on from the scene and information on the screen, it is necessary to click on a hyperlink or perform a search. The concept of exploration is appropriate because it accounts for the fact that online, retail environment, products and product information do not appear to consumers all at once, but they are explored in the same manner, by calling up a succession of pages or scrolling up and down the same page.

Second, the products are not physically present, and experiencing them consists in clicking on different parts of a screen, to look at different images, perhaps simulate their manipulation (as, in the case of cameras, clicking on a hotspot to zoom in or take a photograph), watching a video or obtaining more textual information. Klein (1998) shows how goods which offline cannot be experienced before they are purchased, may, online, have more attributes which can be searched and assessed. Similarly, online user reviews enable consumers to obtain a vicarious experience of goods such as experiential goods, which can be difficult to assess offline (Varlander, 2007). Further, Senecal, Kalczynski, and Nantel (2005) found that consumers who consult product recommendations display a more complex shopping behaviour (in terms of number of pages visited, the linearity of the navigation pattern, and the number of product pages visited) than those who did not consult recommendations, suggesting that they use product recommendations as just one of several factors contributing to their decisions. This behavior is different from offline, where recommendations are often used to reduce decision-making effort and time (Solomon 1986).

Demangeot and Broderick (forthcoming) have conceptualized exploratory potential to reflect four dimensions: (1) *visual impact*, defined as the attention-grabbing, aesthetic visual diversity of individual pages; (2) *experiential intensity*, defined as the ability of the website to produce an involving shopping experience; (3) *marketer informativeness*, defined as the extensiveness of marketer information available on the site; and (4) *non-marketer informativeness*, defined as the extensiveness of product information available on the site, which originates from non-marketer sources, and is used differently than marketing information by consumers (Solomon, 2004). In essence, visual impact and experiential intensity describe the shopping and environmental exploration, while marketer informativeness and non-marketer informativeness concern the informational exploration. Further, the distinction between visual impact and experiential intensity reflects the distinction between perceptions at the level of an individual page and at the level of the entire navigation, experienced as a succession of pages. Other studies have considered the entertaining (e.g. Kim and Stoel, 2004), aesthetic (e.g. Yoo and Donthu, 2001) or informational (e.g. Loiacono, Watson, and Goodhue, 2007) qualities of retail websites. However, the construct of exploratory potential, while encompassing these three dimensions, has the advantage of integrating them since they are all apprehended by consumers through the same process of exploration. Therefore, they are expected to have a common core, motivated by people's fundamental need to explore environments (Kaplan and Kaplan, 1982). Demangeot and Broderick's (forthcoming) study found empirical support to the conceptualization of exploratory and sense-making potential as higher-order constructs.

They conceptualized sense-making potential as reflecting two dimensions: (1) *page clarity*, defined as "the ease with which one can grasp the organization of the scene" (Kaplan, 1992); and (2) *site architecture*, defined as the shopper's perception of the organization of the different pages of the website as a coherent, understandable whole. The distinction between the two dimensions again reflects the distinction between the level of an individual web page and the succession of pages visited during a shopping navigation.

There is an obvious tension between the needs to make sense and to explore, since attempts to facilitate sense-making can reduce an environment's exploratory potential and vice versa. However, both needs have to co-exist: while familiarity is sought after, it also breeds contempt (Kaplan and Kaplan 1982), and exploration satisfies the need for stimulation (Berlyne, 1960).

Several studies using the Technology Acceptance Model (Davis, Bagozzi, and Warshaw, 1989) have found an antecedent-consequence relationship between the model's two main constructs: perceived ease of use and perceived usefulness (Henderson and Divertt, 2003; Karahanna and Straub, 1999). Ease of use is similar, conceptually, to sense-making potential, and usefulness is similar to exploratory potential. It is possible that, as is the case between ease of use and usefulness, sense-making potential is an antecedent of exploratory potential, because the online environment needs to make sense first, before its exploratory qualities can be apprehended fully. Thus:

H1: A retail website's sense-making potential is a predictor of its exploratory potential.

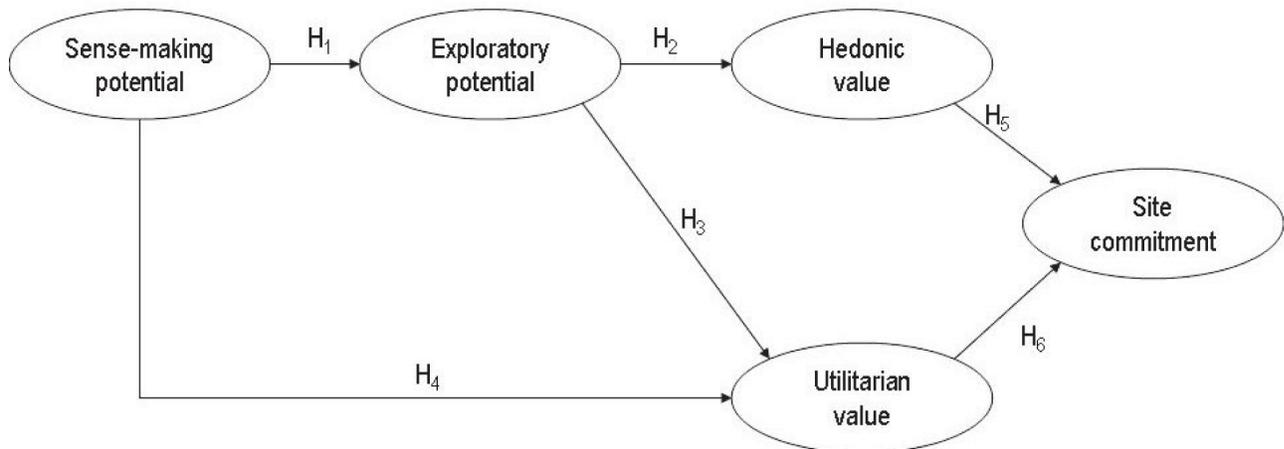
Online exploration and shopping value

Value is considered as a main outcome of shopping experiences (Babin, Darden, and Griffin, 1994; Holbrook, 1986). Since people shop to satisfy a variety of needs, some of which are independent of the acquisition of products (Bloch et al., 1989; Tauber, 1972), shopping value encompasses an appreciation of the whole experience rather than just the success of the shopping trip or navigation with regard to product acquisition (Babin et al., 1994; Diep and Sweeney, 2008). The outcome of a shopping trip or navigation may result in both utilitarian and hedonic shopping value (Babin et al., 1994). Utilitarian value is defined as "an overall assessment of functional benefits and sacrifices" (Overby and Lee, 2006, p. 1161) and hedonic value as "an overall assessment of experiential benefits and sacrifices, such as entertainment and escapism" (Overby and Lee, 2006, p. 1161). Thus, consumers shopping online can potentially draw utilitarian value, if they have gained more from the navigation than the costs expended (financial, time, cognitive), as well as hedonic value, if the experience was rewarding in its own right.

The exploration of landscapes is involving (Kaplan and Kaplan, 1982) and similarly, shopping navigations can be involving due to the medium's potential for interactivity and vividness (Fortin and Dholakia, 2005). More complex information displays (Gammack and Hodkinson, 2003) and image interactivity (Kim, Fiore, and Lee, 2007) increase attention and involvement. The mere presence of involvement suggests that the experience is hedonically rewarding (Bloch and Richins, 1983). Consumers may be able to enjoy a lively interaction with the website or with the product without proceeding with a purchase, and this in itself can produce hedonic value (MacInnis and Price, 1987). Exploratory potential can provide further product knowledge for its own sake, and be perceived as an intrinsically rewarding experience. Thus:

H2: A retail website's exploratory potential provides consumers with hedonic value.

FIGURE 1
CONCEPTUAL MODEL



Furthermore, the involvement elicited by the exploratory potential of a website makes consumers pay more attention (Celsi and Olson, 1988), which facilitates instrumental tasks (Hoffman and Novak, 1996). Cognitively involved consumers are known to increase information processing abilities and search for more information (Beatty and Smith, 1987). Further exploration of the site and interest in looking at more products and more information can lead consumers to find more suitable products, thus making the shopping trip also more successful in utilitarian terms (Kroeber-Riel, 1979). Thus:

H3: A retail website's exploratory potential provides consumers with utilitarian value.

Further, when consumers perceive the website to be easy to make sense of, they are likely to find products or product information more easily. As they accomplish what they set out to do, the navigation will likely produce some utilitarian value (Babin et al., 1994). Hence:

H4: A retail website's sense-making potential provides consumers with utilitarian value.

Value and site commitment

Each online shopping navigation is a 'moment of truth', which will influence the consumer's future intentions and behavior. Obtaining consumer commitment as a result of any site navigation is important (Christopher, Payne, and Ballantyne, 2002), since it explains future behavioral intentions (Park and Kim, 2003). Whether consumers purchase or not during a particular navigation, the ongoing relationship between consumer and retail website—or absence thereof—is subject to the consumer's site commitment. In this study, site commitment is defined as the degree to which the consumer is willing to remain associated with the retail website. It indicates a future-focused assessment of a consumer's recent navigation, linking past and future behavior (Park and Kim, 2003). Because shopping value, whether hedonic or utilitarian, is a positive outcome and increases shopper satisfaction (Babin et al., 1994), it is likely to produce approach behaviors (Jones, Reynolds,

and Arnold, 2006). Therefore the following hypotheses are formulated:

H5: Hedonic value drawn from navigating a retail website is positively related to site commitment.

H6: Utilitarian value drawn from navigating a retail website is positively related to site commitment.

The conceptual model shown in Figure 1 summarizes the six hypotheses derived.

METHOD AND MEASURES

To test the conceptual model, data were collected from a sample of 301 respondents recruited on a voluntary basis among the students and staff of a British university. Respondents were asked to shop at an online bookstore (www2.uk.bol.com) for eight minutes, then answer a questionnaire about that particular navigation experience. The duration was established based on the need for respondents to get to know the site well enough to answer specific questions about its attributes, while keeping the overall duration under 25 minutes.

A relatively unknown site was chosen (only 7.3% of the sample reported having visited it once or occasionally; no-one was a regular user) to capture instant, 'fresh' perceptions, thus overcoming validity concerns expressed about the likely halo effects of studies which call on consumers' memory to describe past experiences (Chen, Wigand, and Nilan, 1999; Lowrey, Otnes, and McGrath, 2005). To maximize the 'naturalness' of the shopping exercise, the site was chosen in a product category which students and university staff typically purchase; the setting for the navigation (computer lab, desk or home) is typical of the setting the respondents use when they shop online; and the instructions themselves asked the respondents to shop "as [they] would normally shop online if [they] were at home, in an internet café or at [their] desk", thus they clearly aimed to induce the sense of shopping, rather than just aimless or experimental browsing.

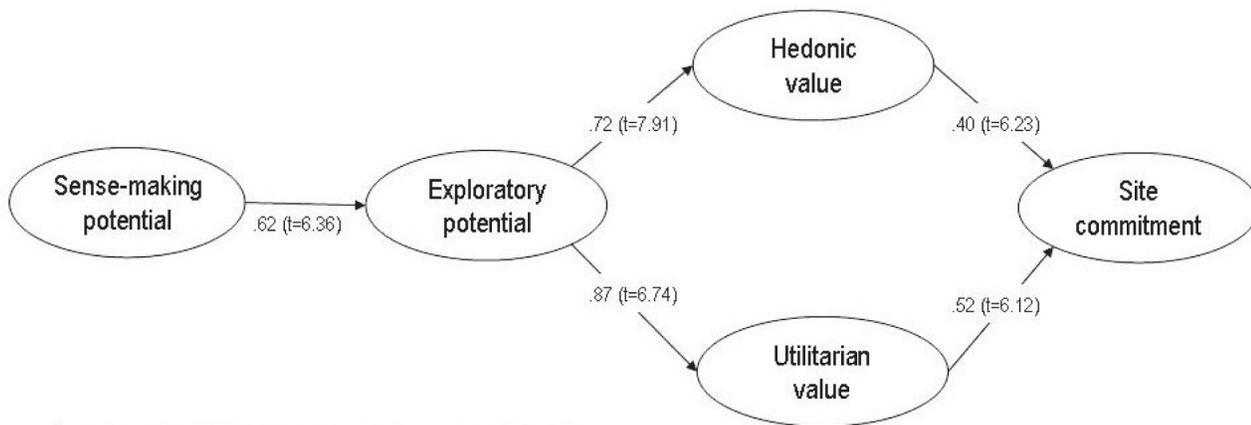
Exploratory potential and sense-making potential were conceptualized as higher-order constructs. They were operationalized as such, and to measure their respective dimensions, the scales

TABLE 1
 PSYCHOMETRIC PROPERTIES OF THE MEASURES OF EXPLORATORY POTENTIAL AND SENSE-MAKING POTENTIAL

Construct/dimension	CR	AVE
Exploratory potential (second-order construct, 4 dimensions)	.76	.46
Visual impact (4 items)	.87	.63
Experiential intensity (4 items)	.79	.48
Marketer informativeness (5 items)	.82	.49
Non-marketer informativeness (3 items)	.81	.59
Sense-making potential (second-order construct, 2 dimensions)	.79	.67
Page clarity (3 items)	.86	.68
Site architecture (6 items)	.86	.51

CR: composite reliability; AVE: average variance extracted

FIGURE 2
 FINAL MODEL RESULTS



$\chi^2 = 1,460.89$; $df=809$; $p=.00$; $RMSEA=.052$; $CFI=.98$

developed and validated in Demangeot and Broderick (forthcoming) were used. The psychometric properties of the two higher-order constructs and their respective dimensions are summarized in Table 1.

To measure hedonic and utilitarian value, Babin, Darden, and Griffin's (1994) scales of 11 and 4 items respectively were used. To meet the unidimensionality requirement (Gerbing and Anderson, 1988), the hedonic value scale was reduced to 6 items, consistent with other studies (e.g. Babin, Chebat, and Michon, 2004). To measure site commitment, items from existing scales (Agarwal and Karahanna, 2000; Coyle and Thorson, 2001) were combined with items developed during a previous, qualitative exploration stage. As recommended by Baumgartner and Steenkamp (2001) to reduce the possibility of response bias, items were ordered randomly and all scales contained both positively- and negatively-worded items.

The Appendix, which details the items retained to tap each measure, shows that all measures display strong psychometric

properties. Discriminant validities between all measures of the model were assessed and supported by, first, ensuring that a confidence interval of two standard errors on either side of the correlation coefficients did not include 1, and second, through the testing of nested models to confirm that correlation coefficients between each set of factors were significantly different from 1 (Anderson and Gerbing, 1988).

FINDINGS

The path model was tested using structural equation modeling, and produced strong goodness-of-fit indices ($\chi^2=1,459.65$; $df=808$; $p=.00$; $RMSEA=.052$; $CFI=.98$). Of the path coefficients freely estimated, all except one have strong values, significant at the .001 level. However, the path from sense-making potential to utilitarian value is not significant. Its coefficient (-.04) has a t-value of -.59. As a result, the model was re-specified to exclude that path. The results of this final model are shown in Figure 2.

Hypothesis 1, which posits a positive relationship between sense-making potential and exploratory potential, is supported, with a path estimate of .62 ($t=6.36$; $p<.001$). When a website makes sense, it is more likely perceived to be worth exploring too. Hypothesis 2 posits a positive relationship between exploratory potential and hedonic value, and it is supported by a path estimate of .72 ($t=7.91$, $p<.001$). When consumers are on a shopping website which has exploratory potential, they draw hedonic value from it. Hypothesis 3, which posited a positive relationship between exploratory potential and utilitarian value, is supported by a path estimate of .87 ($t=6.74$, $p<.001$). This supports the argument that when consumers navigate a site which has potential for exploration, they gain utilitarian value, possibly because the site's exploratory attributes enable them to achieve such shopping objectives as purchasing the most suitable item, being able to compare between several products, or being able to inspect products by clicking on them, etc.

Hypothesis 4 which suggested that sense-making potential is an antecedent of utilitarian value, was rejected. This was an unexpected, yet most interesting finding. The entirety of the effect of sense-making potential on utilitarian value is mediated by exploratory potential. Consumers therefore do not appear to draw *any* value from sense-making attributes if they cannot use them to explore the site. Sense-making potential may be a necessary condition for consumers to be able to explore a site, but it is not sufficient for them to draw value from their visit or form a commitment. This is consistent with Kaplan and Kaplan's (1982) argument that people are not satisfied with just making sense of an environment. They quickly become bored and seek exploration as a way to expand the boundaries of their world.

Hypothesis 5, which posited a positive relationship between hedonic value and site commitment, is supported by a path estimate of .40 ($t=6.23$; $p<.001$). Similarly, Hypothesis 6, which posited a positive relationship between utilitarian value and site commitment, is supported, with a path estimate of .52 ($t=6.12$; $p<.001$). These results suggest that consumers form a commitment to a site based on both kinds of value.

DISCUSSION AND CONCLUSION

Several implications arise from this study. First, the results confirm and further reinforce the notion that exploration plays a central role in providing consumers with shopping value. The strength of the relationship between exploratory potential and both kinds of value, and the absence of a direct relationship between sense-making potential and utilitarian value suggest that exploratory attributes are essential for consumers to draw value from their navigation. Exploratory potential, then, plays a significant role in producing shopping value, and may be thought of as the 'killer attribute' of retail websites. Thus, exploratory potential is the most strategic attribute of retail websites, because by producing shopping value, it creates commitment to the site.

Exploratory potential was found to reflect both spatial exploration and informational exploration attributes. Exploration applies to both the virtual environment and to product-related information. The internet, with its unique characteristics, presents marketers with different opportunities to create a shopping environment and manage product communication, which are equally worth exploring. Online, products can come to life through telepresence (Steuer, 1992); for the first time in consumers' lives, all sources of information they value most (personal, marketer, opinion formers, other users) are available at once; the quantity of information is potentially quasi-unlimited, and it can be searched effectively. The potential for the exploration of online shopping environments can

only grow, as technology and increasing bandwidth provide more ways to bring environments and products to life.

Second, the study found that hedonic value and utilitarian value contribute to site commitment in similar proportions. This is an important finding because although the utilitarian benefits of online shopping are well known (e.g. convenience, absence of crowding, access to more information and access to a wider product range), and the limitations of virtual experiences compared to direct ones have been considered (Grewal, Iyer, and Levy, 2004), online shoppers nevertheless appear to place a high value on hedonic factors when considering their future relationship with a retail website. Online also, the ability to stage intrinsically rewarding experiences is likely to be a source of competitive advantage (Pine and Gilmore, 1998). Marketers' ability to provide, on each visit, a shopping experience which produces high levels of both hedonic and utilitarian value is especially important online where, unless they form the intention of returning to a site during a navigation, shoppers are unlikely to 'stumble into it' again with the ease one stumbles into a store in the high street or a mall.

Managerially, the model developed and tested implies that a major concern of online marketers should be to create and design retail websites which facilitate exploration. The model also suggests ways in which they can manipulate the design of their websites to produce stronger customer commitment. In particular, exploratory potential, which is central to gaining consumer commitment to the site, was found to concern both the shopping environment itself, and the product information. Consequently, as they work closely with IT and design professionals, marketers can use these concepts to ensure that the results of site development or re-designs do indeed result in higher perceptions of exploratory potential. As technology evolves, they will have to keep finding new ways to facilitate the exploration of their online environments and of their products and information.

The study's results need to be considered in the context of its limitations. First, the use of a convenience sample of university students and staff limits the generalizability of its findings. Students have been exposed to virtual environment for a higher proportion of their lives, and are more computer literate and avid online shoppers than average consumers (Marsh, Case, and Burns, 2000). In this respect though, they are perhaps more representative of tomorrow's consumers, and should be a prime concern to marketers, as they consider the future of online retailing.

Second, due to their age and lighter time pressures, students may also have more exploratory behavior tendencies. This could have raised the observed levels of hedonic value. Further research could consider the possible moderating effect of exploratory behavior tendencies. Baumgartner and Steenkamp (1996) have found that both exploratory information seeking tendencies and exploratory acquisition of product tendencies affect actual exploratory consumer behaviors. This begs the question of whether these two constructs moderate the relationship between sense-making and exploratory potential (consumers with high levels of exploratory behavior tendencies may seek and therefore be able to identify exploratory cues more proficiently than others), or between perceived exploratory potential and hedonic value.

A third source of vulnerability lies in the single context (online bookstores) in which the measures and overall model have been developed and tested. Replication applied to a different product category might return different strengths in relationships. In particular, exploratory attributes may have less importance on websites selling less gratifying product categories such as groceries or computer accessories. However, because all online shopping necessitates exploration to move from one webpage to another,

exploratory potential is expected to remain a crucial attribute of all retail websites.

A further avenue for future research would be to establish whether, when consumers are in a hurry to make a decision, exploration may be a hindrance. Offline, Chernev (2006) found that, while consumers relish the flexibility offered by large assortments, they are more confident—when the time comes to make a choice—when choosing among smaller assortments. However, it is possible that the manner in which information is stored, searched, sorted and categorized online, can assist consumers in making sounder decisions among larger assortments, by reducing the amount of cognitive processing required to compare between items of a similar nature. There may also be circumstances when the relationship between sense-making potential and exploratory potential does not exist or, even, is reversed. For instance, in the case of highly technical or really new products, one could conceive that making sense of the site and its information is the result of exploring it more.

Fourth, while the use of an ex post facto design precludes any claim of causality, a number of measures were taken to limit the influence (confound) of extraneous elements—the respondents navigated the same site, at the same download speed, with the same browser display and for the same duration. Nevertheless, a true experimental design would be useful to study the impact of cue manipulations on consumer responses.

Importantly, in view of the central role played by exploration in online shopping behavior, the concept requires further theoretical development. A qualitative approach would be useful in further understanding and distinguishing between different exploration situations during the course of an online shopping navigation. Observational methods, for example by tracking the different pages visited during a single shopping navigation, could help researchers understand consumers' trajectories during a shopping navigation, and perhaps associate different types of trajectories with distinct behavioral outcomes. Further research is also needed, to extricate the possible role of such phenomena as learning, internal information search, information overload, on the relationship between exploratory potential and site commitment.

By highlighting the central role of exploratory potential in committing consumers to a site, a major contribution of this study is to draw attention to the integrating role of exploration in online shopping, and re-focus the main challenge of online retailing as the design of virtual retail environments and the communication of product information in a manner which invites exploration. The consumer behavior literature, which so far has focused mostly on goal-directed search (Janiszewski, 1998), will need to turn its attention towards the exploratory manner in which online, goal-directed shoppers and browsers alike shop and search for products and information. This will become especially important if consumers keep using the internet as part of a cross-channel strategy (Muse, 2006).

In conclusion, this study has revealed, and its findings further emphasized, the central role played by exploratory potential as it increases commitment to a retail website by producing both hedonic and utilitarian value. Further research on the exploratory potential of retail websites holds a great deal of promise, since one can only assume that the constantly evolving technology will provide ever more opportunities and novel ways for retailers to increase the potential for exploration on their website. Furthermore, as internet speeds increase and internet use becomes more widespread and more second-nature to consumers (as the young 'generation internet' comes of age and becomes the consuming majority), the relative importance of sense-making and exploratory potential

is likely to irrevocably and permanently tilt towards exploratory attributes.

REFERENCES

- Agarwal, Ritu and Elena Karahanna (2000), "Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage", *MIS Quarterly*, 24(4), 665-94.
- Anderson, James C. and David W. Gerbing (1988), "Structural Equation Modeling in Practice: A Review and Recommended two-step Approach", *Psychological Bulletin*, 103, 411-23.
- Babin, Barry J., Jean-Charles Chebat, and Richard Michon (2004), "Perceived appropriateness and its effect on quality, affect and behavior", *Journal of Retailing and Consumer Services*, 11(5), 287-98.
- Babin, Barry J., William R. Darden, and Mitch Griffin (1994), "Work and or Fun-Measuring Hedonic and Utilitarian Shopping Value", *Journal of Consumer Research*, 20(4), 644-56.
- Baumgartner, Hans and Jan-Benedikt B. Steenkamp (2001), "Response Styles in Marketing Research: A Cross-National Investigation", *Journal of Marketing Research*, 38, 143-56.
- Baumgartner, Hans and Jan-Benedikt Steenkamp (1996), "Exploratory consumer buying behavior: Conceptualization and Measurement", *International Journal of Research in Marketing*, 13, 121-37.
- Beatty, Sharon E. and Scott M. Smith (1987), "External Search Effort: An Investigation Across Several Product Categories", *Journal of Consumer Research*, 14, 83-95.
- Berlyne, Daniel E. (1960), *Conflict, Arousal and Curiosity*, New York, NY: McGraw Hill.
- Bloch, Peter H., and Marsha Richins (1983), "A Theoretical Model for the Study of Product Importance Perceptions", *Journal of Marketing*, 47, 69-81.
- Bloch, Peter H., Nancy M. Ridgway, and Daniel L. Sherrell (1989), "Extending the Concept of Shopping: An Investigation of Browsing Activity", *Journal of the Academy of Marketing Science*, 17(1), 13-21.
- Celsi, Richard L. and Jerry C. Olson (1988), "The Role of Involvement in Attention and Comprehension Process", *Journal of Consumer Research*, 15(2), 210-24.
- Chen, Hsiang, Rolf T. Wigand, and Michael S. Nilan (1999), "Optimal experience of Web activities", *Computers in Human Behavior*, 15(5), 585-608.
- Chernev, Alexander (2006), "Decision Focus and Consumer Choice among Assortments", *Journal of Consumer Research*, 33(1), 50-9.
- Christopher, Martin, Adrian Payne, and David Ballantyne (2002), *Relationship Marketing-Creating Stakeholder Value*, Oxford: Butterworth Heinemann.
- Coyle, James R. and Esther Thorson (2001), "The effects of progressive levels of interactivity and vividness in web marketing sites", *Journal of Advertising*, 30(3), 65-77.
- Davis, Fred D., Richard P. Bagozzi, and Paul R. Warshaw (1989), "User Acceptance of Computer Technology: a Comparison of Two Theoretical Models", *Management Science*, 5(8), 982-1003.
- Demangeot, Catherine and Amanda J. Broderick (forthcoming), "Consumer Perceptions of Online Shopping Environments: A Gestalt Approach", *Psychology & Marketing*.
- Diep, Vien C. S. and Jillian C. Sweeney (2008), "Shopping trip value: Do stores and products matter?", *Journal of Retailing and Consumer Services*, 15(5), 399-409.

- Eroglu, Sevgin A., Karen A. Machleit, and Lenita M. Davis (2003), "Empirical testing of a model of online store atmospherics and shopper responses", *Psychology & Marketing*, 20(2), 139-50.
- Fortin, David R. and Ruby R. Dholakia (2005), "Interactivity and vividness effects on social presence and involvement with a web-based advertisement", *Journal of Business Research*, 58(3), 387-96.
- Gammack, John and Christopher Hodkinson (2003), "Virtual Reality, Involvement and the Consumer Interface", *Journal of End User Computing*, 15(4), 78-96.
- Gerbing, David W. and James C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and its assessment", *Journal of Marketing Research*, 25(2), 186-92.
- Grewal, Dhruv, Gopalkrishnan R. Iyer, and Michael Levy (2004), "Internet retailing: enablers, limiters and market consequences", *Journal of Business Research*, 57(7), 703-13.
- Henderson, Ron and Megan Divett (2003), "Perceived Usefulness, Ease of Use and Electronic Supermarket Use", *International Journal of Human-Computer Studies*, 59(3), 383-95.
- Hoch, Stephen J. (2002), "Product experience is seductive", *Journal of Consumer Research*, 29(3), 448-54.
- Hoffman, Donna L. and Thomas P. Novak (1996), "Marketing in hypermedia computer-mediated environments: Conceptual foundations", *Journal of Marketing*, 60(3), 50-68.
- Holbrook, Morris B. (1986), "Emotion in the Consumer Experience: Toward a new Model of the Human Consumer", In W. R. Wilson (Ed.), *The Role of Affect and Consumer Behavior: Emerging Theories and Applications* (pp. 17-52), Lexington MA: Heath.
- Janiszewski, Chris (1998), "The influence of display characteristics on visual exploratory search behavior", *Journal of Consumer Research*, 25(3), 290-301.
- Jones, Michael A., Kristy E. Reynolds, and Mark J. Arnold (2006), "Hedonic and utilitarian shopping value: Investigating differential effects on retail outcomes". *Journal of Business Research*, 59(9), 974-81.
- Kaplan, Stephen (1992), "Environmental Preference in a Knowledge-Seeking, Knowledge-Using Organism", In J. Tooby (Ed.), *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp. 581-98), New York: Oxford University Press.
- Kaplan, Stephen and Rachel Kaplan (1982), *Cognition and Environment*, New York, NY: Praeger Publishers.
- Karahanna, Elena and Detmar W. Straub (1999), "The psychological origins of perceived usefulness and ease-of-use", *Information & Management*, 35(4), 237-50.
- Kim, Jihyun, Ann Marie Fiore, and Hyun Hwa Lee (2007), "Influences of online store perception, shopping enjoyment, and shopping involvement on consumer patronage behavior towards an online retailer", *Journal of Retailing and Consumer Services*, 14(2), 95-107.
- Kim, Soyoung and Leslie Stoel (2004), "Dimensional hierarchy of retail website quality", *Information & Management*, 41(5), 619-33.
- Klein, Lisa R. (1998), "Evaluating the Potential of Interactive Media through a New Lens: Search versus Experience Goods", *Journal of Business Research*, 41(3), 195-203.
- Kotler, Philip (1973), "Atmospherics as a Marketing Tool", *Journal of Retailing*, 49(4), 48-64.
- Kroeber-Riel, Werner (1979), "Activation Research: Psychobiological Approaches in Consumer Research", *Journal of Consumer Research*, 5(March), 240-50.
- Li, Hairong, Terry Daugherty, and Frank Biocca (2001), "Characteristics of Virtual Experience in Electronic Commerce: A Protocol Analysis", *Journal of Interactive Marketing*, 15(3), 13-30.
- Loiacono, Eleanor T., Richard T. Watson, and Dale L. Goodhue (2007), "webQual: An Instrument for Consumer Evaluation of Web Sites", *International Journal of Electronic Commerce*, 11(3), 51-87.
- Lowrey, Tina M., Cele C. Otnes, and Mary Ann McGrath (2005), "Shopping with Consumers: Reflections and Innovations", *Qualitative Market Research*, 8(2), 176-88.
- MacInnis, Deborah J. and Linda L. Price (1987), "The Role of Imagery in Information Processing: Review and Extensions", *Journal of Consumer Research*, 13(March), 473-91.
- Marsh, Robert, Thomas Case, and O. Maxie Burns (2000), "Demographic Variables Related to On-Line Purchasing by University Students", paper presented at the 3rd Annual Conference of Southern Association for Information Systems, Atlanta, GA.
- Mehrabian, Albert and James A. Russell (1974), *An Approach to Environmental Psychology*, Cambridge (MA): The MIT Press.
- Muse, Dan (2006), "Online Shopping to Grow-Are you Ready?", www.ecommerce-guide.com/news/research/article.php/3583651.
- Nelson, Philip J. (1974), "Advertising as Information", *Journal of Political Economy*, 82(4), 729-54.
- Overby, Jeffrey W. and Eun-Ju Lee (2006), "The Effects of Utilitarian and Hedonic Online Shopping Value on Consumer Preference and Intentions", *Journal of Business Research*, 59 (10-11), 1160-66.
- Park, Chung-H., and Young-G. Kim (2003), "Identifying key factors affecting behavior in an online shopping context", *International Journal of Retail & Distribution Management*, 31(1), 16-29.
- Pine, B. Joseph I., and James H. Gilmore (1998), "Welcome to the Experience Economy" *Harvard Business Review*, 76(4), 97-105.
- Richard, Marie-Odile (2005), "Modeling the impact of internet atmospherics on surfer behavior", *Journal of Business Research*, 58(12), 1632-42.
- Senecal, Sylvain, Pawel J. Kalczynski, and Jacques Nantel (2005), "Consumers' decision-making process and their online shopping behavior: a clickstream analysis", *Journal of Business Research*, 58(11), 1599-608.
- Singh, Mandeep, Siva K. Balasubramanian, and Goutam Chakraborty (2000), "A comparative analysis of three communication formats: Advertising, infomercial, and direct experience", *Journal of Advertising*, 29(4), 59-75.
- Solomon, Michael R. (1986), "The Missing Link: Surrogate Consumers in the Marketing Chain", *Journal of Marketing Research*, 50(4), 208-218.
- Solomon, Michael R. (2004), *Consumer behavior*, New Jersey: Prentice Hall.
- Steuer, Jonathan (1992), "Defining Virtual Reality: Dimensions Determining Telepresence", *Journal of Communication*, 42(4), 73-93.
- Tauber, Edward M. (1972), "Why Do People Shop?", *Journal of Marketing*, 36(October), 46-59.

APPENDIX
MEASURES USED IN THE MODEL AND THEIR PSYCHOMETRIC PROPERTIES

Construct/item wording	CR	AVE	Completely stand. loading (t-value)
Visual impact-4 items	.87	.63	
The website had a visually pleasing design			.86 (t=12.70)
This website was dull visually (R)			.82 (t=12.11)
The website was aesthetically appealing			.82 (t=12.25)
This site had no visual impact (R)			.67 (*)
Experiential intensity-4 items	.79	.48	
This website replicated the kind of experience I have when I shop			.69 (t=9.31)
The experience of shopping was not there when I navigated on this site (R)			.75 (t=9.89)
When I navigated this website I felt I was shopping for real			.71 (t=9.50)
This website was incapable of reproducing the experience of shopping (R)			.62 (*)
Marketer informativeness-5 items	.82	.49	
There was enough information on this website to assess the products			.57 (t=9.89)
I could learn a lot about the products			.64 (t=11.42)
The information on this website was helpful			.73 (t=13.39)
The information on this website was useful			.71 (t=12.89)
This website adequately met my information needs			.81 (*)
Non-marketer informativeness-3 items	.81	.59	
This site had customer reviews of products			.82 (t=12.14)
From this site it was impossible to see what other users thought of the products (R)			.70 (t=11.25)
This website only gave me its own product information, and not other users' impressions (R)			.79 (*)
Page clarity-3 items	.86	.68	
There was too much text on the screen (R)			.86 (t=16.53)
There was an awful lot of things on every page (R)			.75 (t=14.18)
The pages on this website were too crowded (R)			.85 (*)
Site architecture-6 items	.86	.51	
During the navigation, I felt confused (R)			.70 (t=11.16)
I felt lost on this website (R)			.67 (t=10.81)
My interaction with this website was clear and understandable			.73 (t=11.59)
The web pages were easy to read			.69 (t=11.01)
The content on this site was clear			.77 (t=12.20)
The organization of the information presented on the screen was confusing (R)			.71 (*)
Utilitarian value-4 items	.79	.49	
I accomplished just what I wanted to on this navigation			.76 (t=8.23)
I couldn't find what I really needed on this website			.79 (t=8.36)
While shopping I found just the item(s) I was looking for			.71 (t=7.99)
I was disappointed because I would have to go to another site to complete my shopping (R)			.49 (*)
Hedonic value-6 items	.88	.55	
The navigation on this website was truly a joy			.78 (t=13.88)
Shopping on this website truly felt like an escape			.77 (t=13.71)
I enjoyed this navigation for its own sake, not just for the items I may have purchased			.66 (t=11.43)
I had a good time on this site because I was able to act on "the spur of the moment"			.74 (t=13.12)
During the navigation I felt the excitement of the hunt			.74 (t=13.15)
While shopping on this site I felt a sense of adventure			.77 (*)

APPENDIX (CONTINUED)
MEASURES USED IN THE MODEL AND THEIR PSYCHOMETRIC PROPERTIES

Construct/item wording	CR	AVE	Completely stand. loading (t-value)
Site commitment–7 items	.94	.70	
I will visit this site first when I want to buy books			.79 (t=12.97)
I plan to use this website in the future			.91 (t=14.71)
I intend to continue using this website in the future			.94 (t=15.22)
I expect my use of this website to continue in the future			.91 (t=14.79)
I am unlikely to use this website again (R)			.78 (t=12.75)
I will recommend this site to other people			.82 (t=13.37)
I would have only good things to say about this website			.69 (*)

$\chi^2=1,259.50$, $df=783$ ($p=.000$); $RMSEA=.045$; $CFI=.98$; $n=301$

(R): reverse-scored item. *: the metric for each scale was established by fixing one of the construct indicators to 1.

CR: Composite reliability; **AVE:** Average variance extracted

Turley, Lou W. and Ronald E. Milliman (2000), "Atmospheric Effects on Shopping Behavior: A Review of the Experimental Evidence", *Journal of Business Research*, 49(2), 193-211.

Varlander, Sara (2007), "Online information quality in experiential consumption: An exploratory study", *Journal of Retailing and Consumer Services*, 14(5), 328-38.

Wright, Alice A. and John G.J. Lynch (1995), "Communication effects of advertising versus direct experience", *Journal of Consumer Research*, 21(4), 708-18.

Yoo, Boonghee and Naveen Donthu (2001), "Developing a scale to measure the perceived quality of an Internet shopping site (SITEQUAL)", *Quarterly Journal of Electronic Commerce*, 2(1), 31-46.