3-1-2004

Interactive Experiential ECommerce: An Experimental Study

Ahmed Y. Mahfouz
amahfouz@tamu.edu

INTERACTIVE EXPERIENTIAL ECOMMERCE: AN EXPERIMENTAL STUDY

Ahmed Y. Mahfouz
Texas A&M University
amahfouz@tamu.edu

Abstract

This study explores the effects of two independent variables: navigation shopping behavior (experiential vs. utilitarian) and interactivity levels (low vs. high) on flow experience, in a laboratory experiment that is a 2 x 2 factorial in a completely randomized design. The experiment deals with two commercial web sites: an original with high interactive features and a custom-made, parallel, and fictitious site with low interactive features. The study handles one independent variable, flow experience, in terms of its sensory, affective, cognitive, behavioral, and relational dimensions, based on Schmitt's (1999, 2003) definition of the user experience and in light of flow theory (Csikszentmihalyi, 1975, 1990, 2000).

Keywords: Navigation, interactivity, flow, user experience, ecommerce

Introduction

When consumers shop in a brick-and-mortar store, they have a chance to browse the aisles and inspect products carefully and closely. This user experience is enhanced through the stimulation of the senses with colorful displays, ambient music, inviting scents, physical inspections of products, and interaction with salespeople or other customers. However, online shopping lacks these real experiences but makes up for it in terms of convenience, cost, and time savings. An interactive, well-designed user interface can overcome these limitations to create a more enjoyable shopping episode (Lohse, 1998; Koufaris, 2002).

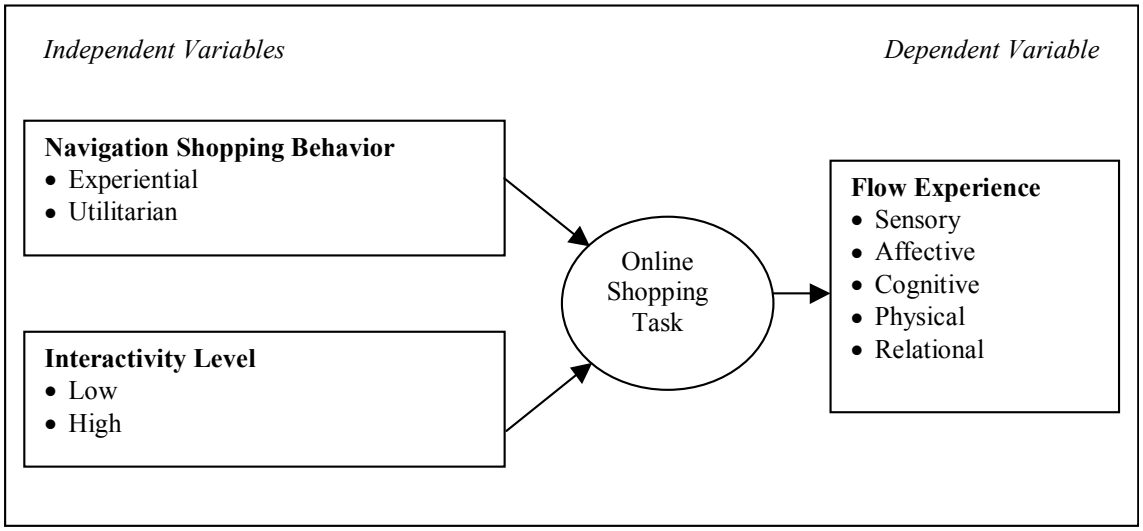

Figure 1. Research Model

As shown in Figure 1, the interaction with a web site occurs via two important components in creating a user or flow experience: navigation and interactivity. Since users primarily experience a site through browsal, navigation shopping behavior is significant to study. The navigation includes dealing with various interactive features of the site, which is the realm of interactivity. Site navigation and interactivity are important determinants of system quality for web customer satisfaction (McKinney et al., 2002). Both navigation shopping behavior and interactivity influence the user experience, as users are connecting with sites and their products through the interface. This interactive environment that creates a user experience in business-to-consumer online commerce is experiential ecommerce.

Literature Review

Navigation shopping behavior can be classified as experiential or utilitarian (Assael, 1998; Hoffman and Novak, 1996; Holbrook and Hirschman, 1982; Novak et al., 2000, 2003; Wolfinbarger and Gilly, 2001). The dual behavior of online consumers, as a regular shopper and as a computer user, necessitate that good interface, navigational architecture, and other facets of human-computer interaction may be as significant as customer service and low prices (Koufaris, 2002). Online customers are not simply looking for efficiency in shopping but value entertainment while shopping (Koufaris, 2002). Besides interactivity and entertainment value, such as how visually attractive, fun, and interesting a web site is, metrics of system quality for web customer satisfaction include site navigation and usability (McKinney et al., 2002). Palmer (2002) mentions that web site success is tied to navigation, download time, content, interactivity, and responsiveness.

Experiential users view shopping as a pleasurable event (Assael, 1998; Novak et al., 2000, 2003). Experiential shoppers enjoy the hunt for bargains online or the social interaction with friends while shopping. They like to navigate web sites to feel and experience the pleasure of shopping for an item, engaged in an emotional and entertaining way. Hence, they may use the web for entertainment or online chats (Novak et al., 2000, 2003). Sensory stimulation via an interactive web site would be very important to experiential shoppers. They are more likely to use search agents also (Wolfinbarger and Gilly, 2001) and revisit sites they find enjoyable. Shopping enjoyment and perceived usefulness of a site are important predictors of revisiting a site in the future (Koufaris, 2002). In addition, user-unfriendly or restrictive navigation poses a threat to users' control of browsal, resulting in negative emotions and less probability of revisits (Dailey, in press)

Utilitarian shoppers, on the other hand, view shopping as a means to an end, and they are task-oriented and have a specific goal to look for practical benefits and information regarding the product functions, while they are visiting a web site or browsing in a store (Assael, 1998; Novak et al., 2000, 2003). For example, they use the web for work, search for particular reference information, or look up online job listings (Novak et al., 2000, 2003).

Interactivity is the ability of direct interface interaction between users and the system in order to modify a web site's look, feel, and content, according to their personal preferences (Palmer, 2002; Zhu and Kraemer, 2002). Rich multimedia and interactivity engage users in many ways, unavailable in other media (Agrawal and Venkatesh, 2002). Other than the vivid media capabilities, users value control over the virtual environment through customization and personalization (Palmer, 2002). This gives them a unique and individualized experience, as they are able to create custom-made products, are greeted by name, and are given product recommendations based on their user profile. They are able to communicate with salespeople and other users online for information and advice through chat rooms and forums. This community sense, such as user ratings of books in amazon.com, is absent in real stores (Alba et al., 1997). Interactivity is hence closing the gap between a real and virtual shopping experience and providing elements not available in physical retailers.

As users shop online with a clear goal, they are using their Internet skills to complete a particular task-at-hand, either entertainment or product search and purchase. They are controlling the interface and may lose track of time as they are concentrating on their web surfing. All these conditions create a flow experience. According to flow theory (Csikszentmihalyi, 1975, 1990, 2000), individuals achieve this state when they are engaged in an activity that they may be oblivious to their surroundings and potentially lose track of time and even self. Athletes equate this to entering the zone, and video gamers liken this to feelings of immersion in the game or being lost in the experience. The Internet allows for a flow experience (Chen et al., 1999; Novak et al., 2000, 2003). In order to improve web site design, scholars need to examine the relationship between navigation shopping behavior (experiential vs. utilitarian) and flow (Novak et al., 2003), in light of flow experience dimensions: sensory, affective, cognitive, behavioral, and relational, according to Schmitt's (1999, 2003) definition of the user experience. The main purpose of the online user experience and flow is to create a complete and holistic user experience. A principal reason for this is that flow is critical in enhancing interface design on the web (Chen et al., 1999).

The user experience has five important dimensions: sensory, affective, cognitive, behavioral, and relational (Schmitt, 1999, 2003). Sensory experience stimulates the senses, which in a web context includes visual, aural, and simulated tactile feelings through 3D manipulations of objects or virtual sensations of being transported to a virtual mall, or sensations of telepresence (Li et al., 2002; Steuer, 1992). Affective experiences deal with emotions and feelings. Users experience fun and entertainment as they play games or correspond with others on the web (Rosenbloom, 2003; Swartout and Van Lent, 2003). Cognitive experiences engage users in creative, problem-solving, and curious ways. Behavioral experiences involve alternative ways of interacting with or using products and their interface, as well as dealing with changes in lifestyles and behaviors, such as revisiting sites. Cognitive and emotional user responses are significant predictors of revisiting sites (Koufaris, 2002), which is a behavioral aspect. Relational experiences integrate features from the other four experiences and transcend beyond the user to include interactions with the community or with salespeople through email, instant messaging, chat rooms, and forums. Online communication is one of the main tenets of the Internet experience (Kim et al., 2002). All these experiences are combined into a holistic whole (Schmitt, 1999, 2003) and converge to the ultimate experience, online flow experience.

Research Model and Methodology

The study will conduct a laboratory experiment. The experiment is a 2 x 2 factorial in a completely randomized design, as shown in Figure 1 above. There are two independent variables or factors with two levels each: navigation shopping experience (experiential vs. utilitarian) and interactivity level (low vs. high). Hence, there are four treatments. The experimental units or subjects, who are college students in an introductory information systems class in a Southwestern university, will be randomly assigned to the treatments. The proposed data analysis involves the use of two-way analysis of variance (ANOVA) and structural equation modeling.

Navigation shopping behavior has two levels: experiential and utilitarian. Experiential users enjoy navigating a web site for fun and entertainment, while utilitarian shoppers are after a specific goal in mind. The online shopping task for experiential users will involve surfing the site for entertainment and fun and trying on the various features of the site. For utilitarian users, the online shopping task entails answering specific search questions about product information.

The experiment will use two commercial web sites with two levels of interactivity: low and high. Known also as brochureware (Van Duyne et al., 2003), the low level site is custom-made, fictitious, and parallel to a commercial web site. This low level site includes static text and images of product information. The high level site is a commercial site. In addition to having the elements of the low level site, the high level site has vividness through dynamic and rich media: animation, sound, video; customization of products; personalization via user profiles and personal greetings after the initial visit; and an online forum and chat.

There is one dependent variable, flow experience, along its five dimensions of sensory, affective, cognitive, behavioral, and relational experiences.

Hence, the study will explore the following hypotheses of main and interaction effects:

H1: Experiential users have a greater flow experience than utilitarian users.

H2: High interactivity level web sites create a higher degree of flow experience compared to low interactivity level web sites.

H3: Experiential users using high interactivity level web sites, or utilitarian users using low interactivity level web sites, will have greater flow experience than experiential users with low interactivity level web sites, or utilitarian users with high interactivity level web sites.

Contributions

This study will add to the body of knowledge in information systems and ecommerce, marketing and online consumer behavior, communications, and psychology. The study will explore the effects of navigation shopping behavior and interactivity on flow experience, along its sensory, affective, cognitive, behavioral, and relational components. The results will benefit both academicians theoretically and practitioners pragmatically. In particular, human-computer interaction and web site design researchers will take advantage of the effects of navigation and interactivity on user experiences and link them to flow theory. Web site designers need to take into account the impact of flow on interface design to better meet users' navigational patterns (Skadberg and Kimmel, in press) and interactive needs. Web site developers will be able to build better web sites to meet the interactive demands of users so that sites have more user control and are more vivid, customized, and

personalized. Designers need to emphasize content and community interface capabilities for experiential users, and they should strive for a very accessible and user friendly interface for product information for utilitarian shoppers (Wolfinbarger and Gilly, 2001). Consequently, the shopping experience will be more enjoyable, resulting in more site revisits (Koufaris, 2002) and site stickiness, or spending more time in a given web site or portal.

References

Agrawal, R., & Venkatesh, V. (2002). Assessing a firm's web presence: A heuristic evaluation procedure for the measurement of usability. *Information Systems Research*, 13(2), 168-186.

Alba, J., Lynch, J., Weitz, B., Janiszewski, C., Lutz, R., Sawyer, A., & Wood, S. (1997). Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing*, 61(3), 38-53.

Assael, H. (1998). *Consumer behavior and marketing action.* Cincinnati, OH: South Western College Publishing.

Chen, H., Wigand, R. T., & Nilan, M. S. (1999). Optimal experience of web activities. *Computers in Human Behavior*, 15(5), 585-608.

Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco, CA: Jossey-Bass Publishers.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper and Row, Publishers, Inc.

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety: Experiencing flow in work and play*. San Francisco, CA: Jossey-Bass Publishers.

Dailey, L. (in press). Navigational web atmospherics: Explaining the influence of restrictive navigation cues. *Journal of Business Research*.

Hoffman, D. L., & Novak, T. P. (1996). Marketing In hypermedia computer-mediated environments: Conceptual foundations. *Journal of Marketing*, 60(3), 50-68.

Holbrook, M. B., & Hirschman, E. C. (1982). The experiential aspects of consumption: Consumer fantasies, feelings, and fun. *Journal of Consumer Research*, 9(2), 132-140.

Kim, J., Lee, J., Han, K., & Lee, M. (2002). Business as buildings: Metrics for the architectural quality of Internet businesses. *Information Systems Research*, 13(3), 239-254.

Koufaris, M. (2002). Applying the technology acceptance model and flow theory to online consumer behavior. *Information Systems Research*, 13(2), 205-223.

Li, H., Daugherty, T., & Biocca, F. (2002). Impact of 3D advertising on product knowledge, brand attitude, and purchase intention: The mediating role of presence. *Journal of Advertising*, 31(3), 43-57.

Lohse, G. L. (1998). Electronic shopping: The effect of customer interfaces on traffic and sales. *Communications of the ACM*, 41(7), 81-87.

McKinney, V., Yoon, K., & Zahedi, F. (2002). The measurement of web-customer satisfaction: An expectation and disconfirmation approach. *Information Systems Research*, 13(3), 296-315.

Novak, T. P., Hoffman, D. L., & Duhachek, A. (2003). The influence of global-directed and experiential activities on online flow experiences. *Journal of Consumer Psychology*, 13(1/2), 3-16.

Novak, T. P., Hoffman, D. L., & Yung, Y. (2000). Measuring the customer experience in online environments: A structural modeling approach. *Marketing Science*, 19(1), 22-42.

Palmer, J. W., & Griffith, D. A. (1998). An emerging model of web site design for marketing. *Communications of the ACM* 41(3), 44-51.

Rosenbloom, A. (2003). Introduction: A game experience in every application. *Communications of the ACM*, 46(7), 28-31.

Schmitt, B. H. (2003). *Customer experience management: A revolutionary approach to connecting with your customers*. Hoboken, NJ: John Wiley and Sons.

Schmitt, B. H. (1999). *Experiential marketing: How to get customers to sense, feel, think, act, and relate to your company and brands.* New York: The Free Press.

Skadberg, Y. X., & Kimmel, J. R. (in press). Visitors' flow experience while browsing a web site: Its measurement, contributing factors, and consequences. *Computers in Human Behavior*.

Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication*, 42(4), 73-93.

Swartout, W., & Van Lent, M. (2003). Making a game of system design. *Communications of the ACM*, 46(7), 32-39.

Van Duyne, D. K., Landay, J. A., & Hong, J. I. (2003). *The design of sites: Patterns, principles, and processes for crafting a customer-centered web experience*. Boston: MA, Addison-Wesley.

Wolfinbarger, M., & Gilly, M. C. (2001). Shopping online for freedom, control, and fun. *California Management Review*, 43(2), 34-55.

Zhu, K, & Kraemer, K. L. (2002). Ecommerce metrics for net-enabled organizations: Assessing the value of ecommerce to firm performance in the manufacturing sector. *Information Systems Research*, 13(3), 275-295.