

December 2003

Facilitating Flow in the Internet Shopping Experience

Yi Guo

Texas A&M University

Follow this and additional works at: <http://aisel.aisnet.org/amcis2003>

Recommended Citation

Guo, Yi, "Facilitating Flow in the Internet Shopping Experience" (2003). *AMCIS 2003 Proceedings*. 443.
<http://aisel.aisnet.org/amcis2003/443>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISEL). It has been accepted for inclusion in AMCIS 2003 Proceedings by an authorized administrator of AIS Electronic Library (AISEL). For more information, please contact elibrary@aisnet.org.

FACILITATING FLOW IN THE INTERNET SHOPPING EXPERIENCE

Yi (Maggie) Guo
Texas A&M University
Maggie-guo@tamu.edu

Abstract

The Internet has impacted how we shop. This dissertation focuses on opening the black box of consumer experience in online retailing environments. In order to do so, a microscopic approach is used to detail the processes and internal states of a customer when interacting with a commercial web site. Based on previous research from related fields, a new concept of Shopping Experience is proposed to study the dynamic, on-going interaction between a customer and commercial web sites.

Shopping Experience is defined as an episode of interaction between a customer and web sites. Flow is an optimal and intrinsically engrossing and enjoyable experience, which is so inner rewarding that people want to repeat it. How to achieve flow in web shopping? What are the factors that facilitate or hinder flow? A series of studies are carried out to programmatically tackle these questions. First, exploratory studies are used to verify the concept of shopping experience and phenomenon of flow in the Internet shopping. Secondly, more effort is undertaken to validate measures of relevant constructs. Finally, a controlled experiment is used to gauge the effect of two factors, namely design factor and task factor. The dissertation will provide deeper understanding of facilitating factors of optimal shopping experience, which certainly will help to build better online shopping environments.

Keywords: Shopping experience, B2C electronic commerce, flow experience, online consumer behavior

Introduction

The Internet has impacted many aspects of our everyday life, including shopping. This dissertation focuses on one specific aspect of Business-to-customer (B2C) electronic commerce (EC), the consumer behavior, especially flow experience, in online retailing environments. This study attempts to tackle questions like, how consumers behave on a commercial web site, how they feel about the interaction with the site, what factors contribute to a positive attitude and flow, and what are irritating and why. These are the most fundamental issues for several reasons. First of all, the Internet is a different medium and a distinct distribution channel with its own right (e.g., Hoffman and Novak 1996, Butler and Peppard 1998), thus, it is natural to study its impact on consumer behavior (Barwise et al. 2002). Secondly, contrary to the earlier prediction of drastic increase of online spending and change of buying habit, overall EC is merely satisfactory. Despite the anticipated incentive and customer value of utilizing online technology, customer acceptance of the Internet as a major and routine shopping place is still not “revolutionary” (Barwise et al.). Studying online consumer behavior may help us understand why. Thirdly, although the online shopping is not a reality yet, it still holds potential to increase in a greater speed in next few years (Barwise et al.). Studying online consumer behavior will help us realize the potential better.

Research Questions

In order to open the black box of on-line consumer behavior, a microscopic approach is used to detail the processes and internal states of a customer when interacting with commercial web sites. Based on previous research from related fields, a new concept of shopping experience is proposed to study the dynamic, on-going interaction. Shopping Experience (SE) is defined as “episodes of interaction of a customer with retailing establishments”. It is a general definition and can be applied to different contexts.

Thus, online shopping experience (OSE) is episodes of interaction between a customer and web sites. Sometimes the interaction between a visitor and web sites becomes so smooth that s/he feels total control of the actions, and experiences time distortion and loss of self-consciousness. The experience is engrossing and intrinsically enjoyable. We say s/he is in “flow” (Hoffman and Novak 1996). Flow is a “peculiar dynamic state—the holistic sensation that people feel when they act with total involvement” (Csikszentmihalyi 1975 p. 36) and an “ordered, negentropic state of consciousness” (Csikszentmihalyi 1988). It is evident that people experience this “optimal experience” in a range of activities, including various online activities (Chen et al. 1998, 1999). However, there has little detailed research on flow experience in an online shopping setting.

This dissertation will try to understand consumer shopping experience with a focus on achieving flow, which is an optimal state of interaction between customers and web sites. A programmatic approach is taken to answer the following questions via a series of studies:

1. What are the components of Shopping Experience?
 - 1a. Does flow exist in the Internet shopping?
2. What are the factors affect Shopping Experience?
 - 2a. What are the factors facilitating flow in the Internet shopping?
3. What are the consequences of flow in the Internet shopping?

Expected Contributions

This research has expected contributions in several research streams. First of all, it is a unique effort to understand online consumer behavior through a microscopic, exploratory approach. It is accomplished by looking into the internal states and processes during interactions between a shopper and web sites. Results from the studies would extend our knowledge on consumer behavior and human computer interaction by including the Internet as a distinctive medium. The newly gained understanding would provide a basis for future research on site usability and technological advances. It also would supply guidelines for site design and shed light on optimal web retailer strategy.

Methodologically, multiple methods, of which some are borrowed and some are new, are used to deal with the uniqueness of interaction between a web site and its clients. Client-side tracking or logging is necessary to provide enough detailed data when studying situated and conditioned experience. In experimental sessions, visitors’ mouse movements are captured; web pages visited are recorded. Some of the participants are asked to verbalize their thoughts. Data collected can be used either on its own or in conjunction with other kinds of data. The analysis and coding of this rich data set is challenging but rewarding. We believe some lessons we learned in a hard way will benefit others with intentions to do the same.

Research Model and Literature Review

Electronic Commerce requests a multi-disciplinary treatment (Koufaris 2002). This dissertation draws theoretic bases from psychology, marketing, and IS: Flow Theory, Retail Atmospherics, and Technology Acceptance Model.

Online Shopping Experience

There is a great amount of research in both IS and marketing fields studying this phenomenon, taking different approach, applying various theories, and following a range of methodologies. In order to put them into perspective, this research proposes a concept of **Shopping Experience (SE)**, which is defined as “episodes of interaction of a customer with retailing establishments”. An online shopping experience, the focus of this dissertation, is “an episode of interaction of a customer with web sites”. We do not dictate the one-to-one customer/store (site) relationship in shopping experience. That means a shopping experience can be between a customer and several stores/sites. However, to keep it simple at the beginning the empirical studies conducted so far are restricted within one web site. Future research will expand to scenarios of multiple sites. Our conceptualization of SE addresses the dynamic and situated nature of *shopping* by including both activities (processes) and in-process responses (states). “Where shoppers go, what they see, and how they respond determine the very nature of their shopping experience.” (Underhill 1999 p.44) SE consists of the following components.

Physical activities. These are the physical behavior of a shopper. In a conventional setting, a shopper walks, reads, sees, touches, smells, listens, tastes (if possible), tries on, talks, buys, and leaves. If we have a camera following a customer, at the end, we can reconstruct his/her path in the store. If we cumulate the videotapes and compare them, we will have a better idea of our customers' traverse patterns and discover problematic designs. In our model for online environments, people navigate, orientate, browse, consult helpers, view products, make a purchase, and manage their accounts. Those activities are straightforward.

Cognitive activities. While behavioral activities are visible and ready to be observed, cognitive and affective activities are more subtle and harder to trace. But they bear equal importance to understand consumers, if not more important. Cognitive activities are the mental processes and states a shopper undergoes during a shopping visit. They include recognizing the perceived stimuli, relating them together and with past knowledge, comprehending and integrating the new information, deciding what to do with them, and planning next step. In the meanwhile, emotions intervene with and are affected by these cognitive processes. Existing marketing literature provides abundant studies in this regard and a basis for our model. The traditional, generic model of consumer problem solving is a linear, staged model with six steps. After *recognizing the problem* (a need), consumers *search for information* both internally and externally. Then a *purchase* (or not purchase) *decision* is made once *alternatives* have been formed and evaluated. The actual *purchase* and *post purchase evaluation* follow. In our model, problem recognition is assumed and post purchase evaluation is out of scope. Thus, product-related cognitive activities are: product information comprehension, product evaluation, product comparison, and decision making. Besides product-related stimuli, shoppers are surrounded by other environmental cues and affected by them. Therefore, cognitive activities also include environmental cue perception and environmental cue evaluation.

Affective activities. This is the emotional attribution component of SE. Researchers have studied the emotional states in the context of the impact of environmental cues on a person in it. Environmental psychologists (e.g., Mehrabian and Russell 1974) drew the Stimulus- Organism-Response (SOR) paradigm to study how an environment (Stimulus) influences people's internal states (Organism) and their behavior (Response). The mediating internal states are the emotional responses. They were classified into three dimensions, pleasure, arousal, and dominance (PAD). Pleasure - displeasure is the positive or negative state of emotion, the degree to which the person feels good, joyful, happy, or satisfied in the situation; arousal-nonarousal refers to excitement level, the degree to which a person feels excited, stimulated, alert, or active in the situation; and dominance-submissiveness refers to the extent to which the individual feels in control of, or free to act in, the situation. Dominance is the inverse of the judged potency of the environment. These feeling states can be assessed from verbal reports using the semantic differential method. Although there are arguments that other emotional measures provide richer assessment of the emotional responses (Machleit and Eroglu 2000), by far, PAD is the most used in marketing studies regarding retailing store design (e.g., Donovan and Rossiter 1982, Eroglu et al. 2001).

In-process responses. Since a shopping experience is an ongoing interaction between the store/site and its shoppers, it is beneficial to realize that there are in-process responses in order to comprehend the diversity patterns in unfolding shopping episodes (Chebat and Dube 2000). Besides the emotional responses, two in-process responses of importance are perceived usefulness and perceived ease of use. Both of them are from well-developed Technology Acceptance Model (TAM). TAM uses these two sets of behavioral beliefs to predict system usage. Perceived ease of use is the user's perception of the amount of effort needed to use the system; and perceived usefulness is the user's perception of the degree to which using the system will improve her/his job performance (Davis 1989). In the context of online shopping, people constantly make assessments on the usefulness and ease of use of a web site. Based on the assessment and emotional attribution, they form behavioral intentions. Based on the intention, shoppers may display either approach or avoidance behavior as the result. The *approach-avoidance behavior* manifests into a variety of actions, including physical approach or avoidance, willing to explore or not to, willing to affiliate or not to, performance, and/or other verbal and nonverbal communications (Mehrabian and Russell 1974 p.96, Donovan and Rossiter 1982). Although perceived usefulness and perceived ease of use have been studied in the context of online shopping behavior (e.g., Koufaris 2002), none of the studies conceptualized these beliefs and intention as changing, process variables.

Optimal Shopping Experience – Flow

Flow "is the crucial component of enjoyment" (Csikszentmihalyi 1975, p. 11). Flow is a "peculiar dynamic state—the holistic sensation that people feel when they act with total involvement" (p. 36) and an "ordered, negentropic state of consciousness" (Csikszentmihalyi 1988). In this state, actions transit seamlessly to another displaying an inner logic. The person involved experiences a smooth transition and a total control of his/her actions and no distraction.

For this to occur, the task should have a clear goal and a quick, unambiguous feedback mechanism. Also, the perceived challenges that the activity presents and skills that the person possesses should match (balance of challenges and skills) so that the activity will neither bore the person (too easy) nor make her/him anxious (too hard). Both challenges and skills have to pass a certain threshold for flow to happen, otherwise the person shows apathy towards the activity (Csikszentmihalyi and Csikszentmihalyi 1988). The dimensions of the flow experiences include focused concentration, “merging of activity and awareness”, perceived control, time distortion, and loss of self (“a transcendence of self”). As the result, “consciousness is in harmony and the self – invisible during the flow episode – emerges strengthened” and “the negentropic quality of the flow experience makes it autotelic, or intrinsically rewarding” (Csikszentmihalyi 1988).

There are concepts of flow (or autotelic) personality and flow activity referring to a personality that has the ability to experience flow easily and an activity that is easy for people to achieve flow, respectively. Both will influence the occurrence of flow. Furthermore, flow is a dynamic, evolving force. It is hard to be in flow for a substantially long period of time since the perceived challenge and skill are changing during the course. In most cases, a person with ever increasing skill will feel bored eventually unless the activity becomes more challenging at the same time.

Directly applying flow in online shopping behavior was pioneered by Hoffman and Novak (1996). First, the flow experience in hypermedia computer mediated environment (CME) is defined as a state that is a seamless sequence of responses facilitated by machine interactivity, which is inherent to Web. The way they classify the dimensions of flow in Web navigation is slightly different from the original structure by Csikszentmihalyi. Requirement of clear goal is assumed here. Besides other experiential dimensions, telepresence is added to reflect (dis)location effect of Web surfing. Furthermore, consumers show better learning and more exploratory and participatory behaviors as the results of flow feeling.

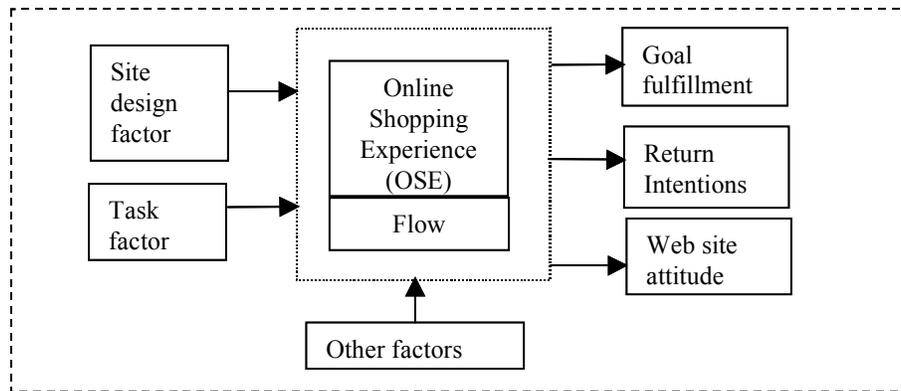


Figure 1. Research Model

Influential factors

Studies have investigated technological factors, contextual factors, and individual factors on consumer behavior. In our model, main factors are site design factor and task factor; other factors including individual factors will be controlled.

Site design factor. It is related to web site design aspect. One approach is to study impacts of individual design cues, more or less continuing the tradition of retail atmospherics. For example, in their proposed framework to examine the potential influence of atmospheric qualities of an online store, Eroglu et al. (2001) categorize online environmental cues (web interface elements) into high and low task relevance, suggest a systematic investigation of those cues' effects on internal states (affect and cognitions), and eventually on the shopping outcome -- approach/avoidance response. A couple of studies have done that, looking at one variable a time. In one study, information load, expressed as complexity and novelty, was found associated to online exploratory and shopping behavior in a field experiment using ten most popular commercial web sites (Huang, 2000). Another feature suggested to be examined for its impact on shoppers' attitude and behavior is navigational cues (Dailey, forthcoming).

Another approach is to treat the web site design as a wholesome construct with underlying factors. There is plentiful research on site quality (Barnes and Vigden 2000a, 2000b, 2002) and site usability (e.g., Nielsen 2000, Palmer 2002). Mainly they focus

on overall site quality. Some are objective measures; some are user perceptions. For example, WebQual (Barnes and Vigden) measures web site design quality by three dimensions: usability, information quality, and interaction quality.

In our model, the second approach is chosen. WebQual will be used as benchmark to vary design factor. First of all, it is hard or impossible to compare web stores by comparing numerous individual design elements directly. Secondly, the design affects shopper as a whole although one particular cue might be prominent. Thirdly, site design changes over time and technology advances, tying too close to design elements makes it hard to compare research results over time. We posit that design factor affects shopping experience and whether shoppers experience flow when shopping.

Task factor. Task factor has been long thought to impact consumer behavior in both offline and online channels. People shop online for different reasons, freedom, control, and fun (Wolfinger and Gilly 2001, Childers et al. 2001). A couple of studies examined task effect in regard of the flow experience. Flow has been found to occur in both goal-oriented and experiential activities (Novak et al. 2003). In an experimental study, the effects of web navigation design and user motivation on experiencing flow are put into investigation (Wan and Nan 2001). It was posited that the match situations (static web site with information seeking motives, dynamic web site with entertainment seeking motives) would facilitate positive emotions and experience, resulting in high evaluation and high behavioral intention. Although the interaction between two factors (web feature and user motivation) was significant, the congruency effect was not symmetric. We posit that task also affects shopping experience and flow. Furthermore, the congruence of design and task is the key for flow to happen.

Other contextual factors. In their proposed conceptual model, Smith and Sivakumar (forthcoming) tried to explore conditions under which flow can facilitate different aspects of online shopping. The model incorporated consumer-related factors, the nature of products involved, and the nature of the purchase occasion. This is the first time that individual factors besides skills are included and shopping-specific factors are systematically considered in a model, which moved one step further to study flow in online shopping. In our model, individual factors are captured as control variables, including demographic data, general skills, and relevant personality traits. In our studies, products selected are all with a high level of involvement.

Shopping Outcomes

The outcomes of a shopping experience are with special importance for retailers. Our ultimate goal of studying SE is to achieve desired results via creating a better experience. Outcomes of a shopping trip are multi-faceted. The most direct measures are actual purchase and spending (Donovan et al, 1994) for the objectivity and straightforwardness. Customer subjective responses are also used to evaluate a shopping experience both online and offline. Such measures include customer (user) satisfaction (Szymanski and Hise 2000, McKinney et al. 2002, Devaraj et al. 2002, Khalifa and Liu 2002, Palmer 2002), attitude/mode change (Eruglu et al. 1991, Spies et al. 1997, Yoo 1998), intention of return/use (Baker et al. 2002, Palmer 2002, Koufaris 2002), image forming (Markin and Lillis 1976, Baker et al. 1994) and so on. Other outcomes studied by marketing and IS field (in the context of EC) are need fulfillment and expectation confirmation (Bhattacharjee 2001, McKinney et al. 2002). These outcomes are thought to drive customer satisfaction and are suitable for cases that actual buying is not the goal. On the other hand, abandonment, a shopper leaves a store without fulfill his/her needs, is one of the outcomes too, although it is one we don't like.

In our model, the result of a shopping experience is examined from three aspects. We posit that better shopping experience and flow will result in goal fulfillment, positive attitude, and intention of return.

- Goal fulfillment: whether the customer fulfills or even exceeds the planned goal. It is the direct result of a shopping experience. Actual spending is also included in the cases of purchasing (planned or unplanned).
- Web site attitude: users' final attitude toward the web site.
- Return intention: customers' intention of return.

We can see these aspects are not totally orthogonal in that the goal fulfillment will affect customers' perception about the web site and also their attitude will determine their intention. Although in the model, it is presented like a chain-effect with online shopping experience and flow as the mediator, we emphasize the dynamic and on-going nature of SE. So, this model should not be treated as a path model but rather a pictorial illustration.

Research Method and Status

Since Shopping Experience is a newly defined concept, a series of studies are needed to study it in web shopping. Studies conducted so far are exploratory in nature as an effort to verify the concept and to further refine its definition and structure if needed.

As a start, three activities took place simultaneously. To verify our initial intuition, an exploratory study was conducted to provide insights on understanding of online shopping experience after literature review and initial model development. The second exploratory study is designed to repeat part of exploratory study 1 and to further test constructs involved. At last, a controlled experiment is going to test variables affecting the flow experience and relationships between flow and outcome variables. (Figure 2)

The first exploratory study was to answer first research question and utilized protocol analysis approach to overcome the disadvantages of self-reported survey method, which has been the dominated data collection method when studying online customer experience. Protocol analysis approach is suggested as a suitable tool to explore a situated, conditioned, dynamic, individual experience (Finneran and Zhang 2002) and to discover underlying processes. A panel of a small size was asked to carry out a purchasing task on a commercial web site. Their movement and voice were captured. Both subjects' verbalization and mouse movements have been transcribed and segmented into protocols. Based on our structure of OSE, 23 rules in five categories were derived to code these protocols. Initial coding schema was applied to the data to gain insights on the structure of OSE and preliminary results show that most of the components are presented in our data.

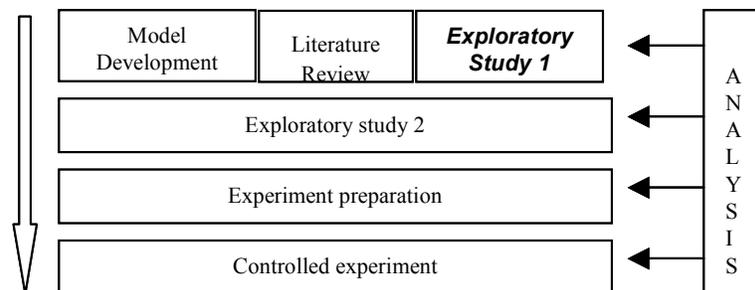


Figure 2. Research Design

The second exploratory study will have two parts. The first part is the repeat of the exploratory study 1 with a larger sample size. The objective is to verify the concept of online shopping experience. The second part of the study is to assess the flow experience in the Internet shopping and to validate measures of mediating and outcome variables. Experience Sampling Method (ESM) will be used to capture “on the spot” data of shoppers’ internal state. This method was developed originally using electronic pagers to prompt respondents to report on their thoughts and feelings in 1976 (Csikszentmihalyi and Csikszentmihalyi 1988). Since then, it has been used extensively in flow studies and versions of Experience Sampling Form (ESF) have been created. Chen et al. (1998) adapted this method using a computer application to collect data when computer users were surfing the Internet. A computer application will be developed to trigger ESF with a preset frequency. A pre-study questionnaire includes question of demographics, online shopping history and attitude, related personal traits, and general skill. ESF includes questions on shoppers’ internal states and thoughts. Post-study questionnaire consists of questions regarding outcome variables and open questions soliciting insights on factors influencing shopping experience. Sample will be undergraduate and graduate students, mainly in business majors from a North American university. College students are representative sample for online shopping population. In the panel and exploratory studies, the experimental procedure, computer software, task design, and questionnaires will be tried out.

Eventually, a controlled experiment will be conducted to test effects of selected factors. As we carry out the exploratory studies, the design of experiment will be shaped accordingly. We believe the dissertation will provide a deeper understanding into facilitating factors of optimal online shopping experience. And it is just the beginning of an engrossing journey of investigation and discovery.

References

- Baker, J., D. Grewal, and A. Parasuraman (1994) "The Influence of Store Environment on Quality Inference and Store Image," *Journal of the Academy of Marketing Science* (22) 4, pp. 328-339.
- Baker, J., A. Parasuraman, D. Grewal, and G. B. Voss (2002) "The influence of multiple store environment cues on perceived merchandise value and patronage intentions," *Journal of Marketing* (66) 2, April, pp. 120-141.
- Barnes, S. J. and R. T. Vigden. (2000) "Information and interaction quality: evaluating Internet bookshop web sites with WebQual." *13th International Bled Electronic Commerce Conference, Bled, Slovenia, 2000*.
- Barnes, S. J. and R. T. Vigden. (2000) "WebQual: An Exploration of Web Site Quality." *Eighth European Conference on Information Systems, Vienna, 2000*.
- Barnes, S. J. and R. T. Vigden (2002) "An Integrative Approach to the Assessment of E-Commerce Quality," *Journal of Electronic Commerce Research*, (3) 3, pp. 114-127
- Barwise, P., A. Elberse, and K. Hammond (2002) "Marketing and the Internet: a research review," Future Media Research Programme, <http://www.marketingandtheinternet.com/> (March 1, 2003).
- Bhattacharjee, A. (2001) "An empirical analysis of the antecedents of electronic commerce service continuance," *Decision Support Systems*, (32) 2, December, pp. 201-214.
- Chebat, J.-C. C. and L. Dubé (2000) "Evolution and Challenges Facing Retail Atmospherics: The Apprentice Sorcerer Is Dying," *Journal of Business Research* (49) 2, August, pp. 89-90.
- Chen, H., R. T. Wigand, and M. Nilan. (1998) "Optimal Flow Experience in Web Navigation." *Information Resources Management Association International Conference, Boston, MA, USA, 1998*, pp. 633-636.
- Chen, H., R. T. Wigand, and M. S. Nilan (1999) "Optimal experience of Web activities," *Computers in Human Behavior* (15) 1, September, pp. 585-608.
- Childers, T. L., C. L. Carr, J. Peck, and S. Carson (2001) "Hedonic and utilitarian motivations for online retail shopping behavior," *Journal of Retailing* (77) 4, Winter, pp. 511-535.
- Csikszentmihalyi, M. (1975) *Beyond boredom and anxiety: experiencing flow in work and play*, 1st edition. San Francisco: Jossey-Bass Publishers.
- Csikszentmihalyi, M. (1988) "The Flow Experience and its Significance for Human Psychology," in M. Csikszentmihalyi and I. S. Csikszentmihalyi (Eds.) *Optimal experience: psychological studies of flow in consciousness*, Cambridge: Cambridge University Press, pp. 15-35.
- Csikszentmihalyi, M. and I. Csikszentmihalyi (1988) "Introduction to Part IV," in M. Csikszentmihalyi and I. Csikszentmihalyi (Eds.) *Optimal experience: psychological studies of flow in consciousness*, Cambridge: Cambridge University Press, pp. 251-265.
- Dailey, L. (forthcoming) "Navigational web atmospherics: Explaining the influence of restrictive navigation cues," *Journal of Business Research*.
- Davis, F. D. (1989) "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology," *MIS Quarterly* (13) 3, September, pp. 319-340.
- Devaraj, S., M. Fan, and R. Kohli (2002) "Antecedents of B2C channel satisfaction and preference: Validation e-Commerce metrics," *Information Systems Research* (13) 3, pp. 316-333.
- Donovan, R. J. and J. R. Rossiter (1982) "Store Atmosphere - An Environmental Psychology Approach," *Journal Of Retailing* (58) 1, pp. 34-57.
- Donovan, R. J., J. R. Rossiter, G. Marcoolyn, and A. Nesdale (1994) "Store atmosphere and purchasing behavior," *Journal of Retailing* (70) 3, Fall, pp. 283-294.
- Eroglu, S. A., P. S. Ellen, and K. A. Machleit. (1991) "Environmental cues in retailing: suggestions for a research agenda." *proceedings of the 1991 Symposium on Patronage Behavior and Retail Strategy, 1991*. The cutting edge II.
- Eroglu, S. A., K. A. M. Machleit, and L. M. Davis (2001) "Atmospheric qualities of online retailing a conceptual model and implications," *Journal of Business Research* (54) 2, pp. 177-184.
- Finneran, C. and P. Zhang. (2002) "The Challenges of Studying Flow Within A computer-Mediated environment." *8th America Conference of Information Systems, Dallas, 2002*.
- Hoffman, D. L. and T. P. Novak (1996) "Marketing in hypermedia computer-mediated environments: Conceptual foundations," *Journal of Marketing* (60) 3, July, pp. 50-68.
- Huang, M. H. (2000) "Information load: its relationship to online exploratory and shopping behavior," *International Journal of Information Management* (20), pp. 337-347.
- Khalifa, M. and V. Liu. (2002) "Satisfaction with Internet-Based Services." *Proceedings of 35th Annual Hawaii International Conference on System Sciences (HICSS'02)* (CD-ROM), Computer society Press, 10 pages.
- Koufaris, M. (2002) "Applying the technology acceptance model and flow theory to online consumer behavior," *Information Systems Research* (13) 2, pp. 205-233.

- Machleit, K. A. and S. A. Eroglu (2000) "Describing and Measuring Emotional Response to Shopping Experience," *Journal of Business Research* (49) 2, August, pp. 101-111.
- Markin, R. J. and C. M. Lillis (1976) "Social-psychological significance of store space," *Journal of Retailing* (52) 1, spring, pp. 43-54.
- McKinney, V., K. Yoon, and F. Zahedi (2002) "The measurement of Web-customer satisfaction: An expectation and disconfirmation approach," *Information Systems Research* (13) 3, pp. 296-315.
- Mehrabian, A. and J. A. Russell (1974) *An Approach to Environmental Psychology*. Cambridge, MA: MIT Press.
- Nielsen, J. (2000) *Design Web Usability*. Indianapolis, IN: New Riders Publishing.
- Novak, T. P., D. L. Hoffman, and A. Duhachek (2003) "The influence of Goal-Directed and Experiential Activities on Online Flow Experiences," *Journal of Consumer Psychology* (13) 1.
- Palmer, J. (2002) "Web site usability, design, and performance metrics," *Information Systems Research* (13) 2, pp. 151-167.
- Smith, D. N. and K. Sivakumar (forthcoming) "Flow and Internet shopping behavior: A conceptual model and research propositions," *Journal of Business Research*.
- Spies, K., F. Hesse, and K. Loesch (1997) "Store atmosphere, mode and purchasing behavior," *International Journal of Research in Marketing*, 14pp. 1-17.
- Szymanski, D. M. and R. T. Hise (2000) "e-Satisfaction: an initial examination," *Journal of Retailing* (76) 3, pp. 309-322.
- Underhill, P. (1999) *Why We Buy: the science of shopping*. New York, NY: Simon & Schuster Inc.
- Wan, F. and N. Ning. (2001) "Web User's Optimal On-line Experience: An Examination of the Effects of Web Navigation Design and Web User Motive." *Experiential 3-D E-commerce Conference, East Lansing, Michigan, USA, 2001*.
- Wolfenbarger, M. and M. C. Gilly (2001) "Shopping online for freedom, control, and fun," *California Management Review* (43) 2, pp. 34-55.
- Yoo, C., J. Park, and D. J. MacInnis (1998) "Effects of Store Characteristics and In-Store Emotional Experiences on Store Attitude," *Journal of Business Research* (42) 3, pp. 253-263.