Interactivity as the Driving Force Behind E-Commerce

Nichaya Sukpanich  
*The University of Memphis*, nsukpnch@memphis.edu

Lei-da Chen  
*Northern Michigan University*, lchen@nmu.edu

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Nichaya Sukpanich, Fogelman College of Business and Economics, The University of Memphis, nsukpnch@memphis.edu
Lei-da Chen, Walker L. Cisler College of Business, Northern Michigan University, lchen@nmu.edu

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Abstract
This research examines the role of interactivity in electronic commerce. Three dimensions of interactivity are identified (machine, content, and person) as necessary for a successful online sale. These dimensions are investigated in relation to desirable outcomes: focused attention, telepresence, perceived control, trust, consumers’ positive affect, and intended purchase. The relationships between interactivity and all desirable outcomes are empirically tested using survey data from online consumers.

Introduction
Recently, the explosive growth of commerce on the Internet, particularly on the World Wide Web (WWW), has been phenomenal. By 2003, Forrester projects that online trade will rise to $103 billion within the business-to-consumer sector (Jedd, 2000). Although this projection is enticing, with the exponential growth of new online business, it is easy for small online stores to vanish into cyberspace without a payoff unless they have something valuable to offer (Skoll, 1999). Evidence shows that many companies that have made sizable investments in online stores were unable to attract enough customers to place orders and thereby failed to generate enough revenue (1998). The major complaint of shoppers is that online shopping is troublesome due to the "lack of availability of information and customer service" (Levy, 1999, p. 192).

What can firms do to capture and enhance sales? The great challenge for Internet sellers is to create Web site that will allow them entice customers to participate in the e-commerce experience. This paper postulates that interactivity is a key underlying factor behind the potential success of Web commerce design. Interactivity allows customers to disengage themselves from their traditionally passive role as receivers of information to actively participate in the communication process. The ability to establish much greater perceived control over the information search, acquisition, and purchasing process will provide commercial advantages to Web providers.

Literature Review
Popular and scholarly literature assumes that interactivity is a basic feature of the WWW (e.g. Dysart, 1998 and Wigand, 1997). However, the importance of interactivity has been taken for granted without further investigation. Little research has been undertaken by marketing academics to understand the role interactivity plays in the Web commerce phenomenon (for exceptions see Hoffman and Novak, 1996; Yang, 1994). This research aims to fill this void.

Interactivity - A Definition
According to Blumenfel and Dillon (1996), interactivity is the basis of most human activities; i.e., people have the ability to affect the environment before them. People perceive a high degree of interactivity with the environment when they are able to effectively control the outcome of their interaction. In the context of the Web environment, three kinds of interactivity can be defined: machine interactivity (Hoffman and Novak, 1996; Steuer, 1992), content interactivity (Rafaeli, 1988), and person interactivity (Hoffman and Novak, 1996; Steuer, 1992). Machine interactivity exists when a person clicks on the computer and the computer responds (e.g., retrieves information or presents content), while content interactivity exists when a person feels that the Web content matches their needs. Person interactivity occurs when a person can establish a one-on-one relationship with the salesperson or other consumers online.

Machine Interactivity
According to Steuer, (1992) and Hoffman and Novak, (1997), there are three components of machine interactivity: speed, range, and mapping. These components determine the degree to which users can participate in modifying the form and content of a mediated environment in real time.

Speed refers to the rapidness of the respose of the machine to a particular action. It is the “rate at which input can be assimilated into the mediated environment” (Steuer, 1992). In general, it is likely that when customers do not get a timely response back when they click with the mouse on a hypertext link, they are left with a negative impression and more frequently will hit the "Stop" button and abandon the site (1998).

Mapping is “the ability of a system to map its controls to changes in the mediated environment in a natural and predictable manner” (Steuer, 1992). It refers to the naturalness and intuitiveness of Web navigation that customers will experience. On the Web, it is likely that if consumers get lost in a large Web site without a good
map, they might become confused and frustrated. To reduce the likelihood that users will become lost, the navigation system should allow users to have greater flexibility of movement within the site.

Finally, range is considered as the number of possible actions available to a consumer at a given time (Steuer 1992). There are a number of different ways that customers can manipulate content or format on the Web; e.g., hyperlinks, search engine, or downloading, (Wilson 1996).

**Content Interactivity**

Content interactivity refers to the extent that information provided on the Web has some relevance to users, grabs their attention, and leaves them with a positive experience so that they make a purchase. Content interactivity can be broken down into two sub-dimensions: informativeness and entertainment. Informativeness refers to the ability of Web content to inform consumers of product alternatives so that they can achieve the greatest level of satisfaction from an informed choice (Ducoff, 1996, p. 23). Entertainment refers to the fulfillment of a target audience’s need for “escapism, diversion, aesthetic enjoyment, or emotional release” (Ducoffe, 1996, p.25).

**Person Interactivity**

This study examines key determinants of buyer-seller and buyer-buyer interactivity in Web commerce. Web buyer-seller relationships include interactions between customers and company representatives through e-mail, chat-rooms, discussion groups, Web conferencing, and so on (Hoffman and Novak, 1997). Buyer-to-buyer relationships will involve interactions among friends, colleagues, and other customers. The Web has the potential to greatly increase customer to customer interactions.

**Outcomes of Interactivity**

The end result of high interactivity is that the customer will make a final purchase. Intermediate outcomes of higher interactivity for the customer are increased “focused attention”, “telepresence”, and “perceived control”. Also, higher person interactivity should lead to a higher level of trust. Both trust and perceived control determine a consumer’s “positive affect”, which, in turn, affects the outcome or final purchase. (see Figure 1)

**Focused Attention**

According to Csikszentmihalyi (1977, p.40), focused attention is characterized as “a centering of attention on a limited stimulus field.” That is, the customer’s attention is gripped by what appears on the computer screen. The more customers experience a high level of interactivity, the more they will be able to center their attention on what appears on the screen.

**Telepresence**

Telepresence results from focused attention (Hoffman and Novak, 1996; 1997). Steuer (1992, p.76) defines presence as “the natural perception of an environment” and telepresence as “the mediated perception of an environment.” Telepresence occurs when customers are transported into the environment defined by the message or information on the Web. Hence, they have effectively tuned out their own immediate physical environment. We hypothesize that customers will have a high degree of telepresence when they have a high degree of focused attention.

**Perceived Control**

The Web provides a telepresence environment that is a foundation for consumer perceived control. Consumer perceived control refers to consumer confidence in performing a task. (e.g., Web navigation). Given the existence of telepresence, when consumers are able to interact with and change their environment then they are likely to achieve a sense of perceived control (Hoffman and Novak, 1996). In the context of the Web, consumers
can control the navigation process, navigating anywhere they want; they can insert content into the medium in different forms (text, graphic, audio); they can select content to view; and they can enter into a discussion with salespersons.

Trust
Trust is a crucial element in the successful completion of a transaction between parties. In this paper, trust refers “a willingness to rely on an exchange partner in whom one has confidence.” (Moorman et al., Deshpande, and Zaltman, 1993). To build trust, parties need the full information that only comes from person-to-person interactions. Trust is built on knowing the other person, and “knowing” seems to be derived from ongoing conversations between two or more individuals over time (Morgan and Hunt 1993).

Positive Affect
Positive affect refers to positive feeling toward the Web site which can be generalized to the Web provider. Positive affect can be derived from consumers' perceived control and trust. The Web's biggest appeal to consumers is that it allows them control over the information displayed and control over the navigation process. Web pages, programmed in HTML, give consumers the control to select the information they want to read and go to other information sources to find out more about the product. In addition, positive affect occurs when consumers trust salespersons. This trust can be enhanced by an ongoing dialogue between consumers and salespeople through e-mail or a newsgroup over time (Hoke, Ray, and Galenskas, 1997).

Intention to Purchase
A purchase is the ultimate concern of a Web provider. The interactivity of the Web allows consumers to consider alternative purchases, provide information to help consumers screen the alternatives, and to place an order, while at the same time providing entertainment and social interaction (Alba et al., 1997). There is also the potential for establishing trust between the transacting parties. Intuitively and theoretically, positive affect will therefore lead customers to make a purchase on the Web.

Conclusion
An online survey will be conducted to validate the proposed theoretical model. Then, a structural causal model will be used to analyze the data and to test the validity of the model. This proposed research will contribute to a greater understanding of the role of interactivity in consumer purchasing decisions, which lead to better Web site design. This research will also facilitate more efficient allocation of resources by Internet firms, which are better able to target key kinds of consumers. Such a marketing strategy will result in a higher return-on-investment.

Selected References (others available upon request)