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Retailer Web Site Influence on Customer Shopping: An Exploratory Study on Key Factors of Customer Satisfaction

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ABSTRACT

The Internet/World Wide Web (Web) is a critical medium for the sharing of business information between retail firms and their customers (business-to-customer or B2C). Although electronic commerce (e-commerce) has received considerable research attention, little research has examined the effect of e-commerce's Web presentations on retail customer shopping experiences. This two-phase study explored customer reactions to Web retailers' presentations of their products/services, attempting to identify Web-site characteristics that contribute to customer satisfaction arising from the Web-based shopping experience. Findings from use of the qualitative method of existential phenomenology were explored further with quantitative analyses including logistic regression. Findings suggest that two key elements in "positive" retail Web sites are convenience of site use and simplicity of site design for the customer's access to information about product/service characteristics and customer-service policies.

Keywords: E-commerce, sales policy, customer service, Internet/Web-based firm, customer satisfaction, electronic shopping, audio/video streaming technology

I. INTRODUCTION

Customer satisfaction in traditional retail markets is one of the most important issues in the field of business [Zwass 1996, 1999]. Customers expect a certain level of service to accompany their purchases of goods and services, and the "service-profit chain" recognizes the lifetime value of a loyal customer [Heskett et al. 1994; Watson et al. 1998]. Elements that contribute to customer satisfaction and thereby to repeat purchases include availability of sufficient information about product/service features and warranties and guarantees, ease of return or exchange, technical support, and even the convenience of the purchase experience itself.

Over the past several decades, models of determinants of customer satisfaction and dissatisfaction have been studied widely in the conventional customer market [Bemis 1996; LaBarbera and Mazursky 1983; Oliver 1980; Spreng et al. 1996]. However, although trade and popular literature indicate much marketing concern about on-line retail customer satisfaction [*American Banker* 2001; Bourne 2000; Christensen 2000; Dodson 2000; *Fairfield County Business Journal* 2000; Gonser 2000; Levey 2000; Sinioukov 2000; Sweeney 2000], little research has considered the customer's affective reaction to product/service information and customer-service elements as presented by Internet retail marketers for on-line customers. Yet, the Web-based retail shopping experience may differ from conventional shopping in several ways, possibly resulting in differing customer satisfaction elements.

In 2001, an estimated 56% of United States households had a personal computer [AOL Consensus Estimates 2001], and it is estimated that more than half of all homes in the United States now have access to the Internet [TRPI 1998]. An Internet user survey [Georgia Tech 1998] reported that 70.8% of its respondents spent more than $100 through Internet shopping in the previous six months. More than 85% of the respondents in that survey expected to spend on the same level or more through on-line shopping during the next six months. On the global level, a recent Global Internet Trends Report from Nielsen//Net Ratings [2001] indicates that more than 420 million people had Internet access in 27 countries in 2001. Several studies have indicated that since 2000, the proportion of Internet users who shopped on-line increased globally by 50%. Forecasts of electronic shopping sales have ranged from $5 billion to $300 billion annually [Reda 1995; Wilensky 1995]. The junction of technological and cultural changes has made the new and revolutionary Internet distribution channel possible; and on-line shopping has the potential to alter the fundamental manner of consumer shopping [Schiesel 1997]. Aware of this trend, conventional retail marketers have been jockeying to gain advantage of potential sales and revenue growth through on-line marketing to customers.

With the explosive growth of conventional marketers offering their products and services on-line, as well as new businesses proliferating solely for on-line marketing, research is warranted to examine the key factors in customers' shopping experiences that contribute to customer satisfaction with shopping via this new marketing channel. Research that contributes to understanding of customer experiences with on-line shopping has important implications for researchers as well as business managers and information systems managers [Adam et al. 1999].

Although marketers are beginning to understand the innovative strategies that will attract visitors to Web sites [Hoffman et al. 1995; Morr 1997], little is known about the factors that make Web use a compelling customer experience or about the key customer satisfaction outcomes of this compelling experience. Researchers have been trying to develop and test a general model of the on-line customer experience [Novak and Hoffman 1997; Novak et al. 2000]. However, few studies have been conducted to test the relationship between retail Web-site presentations and key elements of customers' "lived" on-line shopping experience (in terms of site design effectiveness for satisfactory customer shopping experiences). Accordingly, this research examines, from the customer's viewpoint, the key factors impacting customer satisfaction related to search and alternative evaluation (customer decision steps) [Mowen 1995] in on-line shopping.

In a research area that is not well developed (such as the present topic), use of qualitative methods is considered advantageous for exploring the topic to develop theoretical variables which then may be employed in quantitative research. Thus, because customer on-line shopping [Baty and Lee 1995; Jarvenpaa and Todd 1996/1997; Quelch and Klein 1996] is an experience vastly different in many ways from conventional shopping, qualitative methodology was applied in Study Phase I. The project then was triangulated by the use of quantitative methodology in Study Phase II to develop additional understanding of the customer's on-line shopping experiences as identified in Study Phase I. Such triangulation of methodologies, as in this combination of qualitative and quantitative research, has been found useful for revealing and probing research variables [Currall et al. 1999; Jick 1979].

This research project offers three contributions. First, customer service theory and the theory of disconfirmation of expectations are applied in the developing field of electronic marketing. Second, the methodology demonstrates the value of triangulating quantitative and qualitative techniques for inquiry and analysis of data. Finally, the results offer new insights that can aid information systems managers and Internet marketers in improving their on-line presentations to customers.

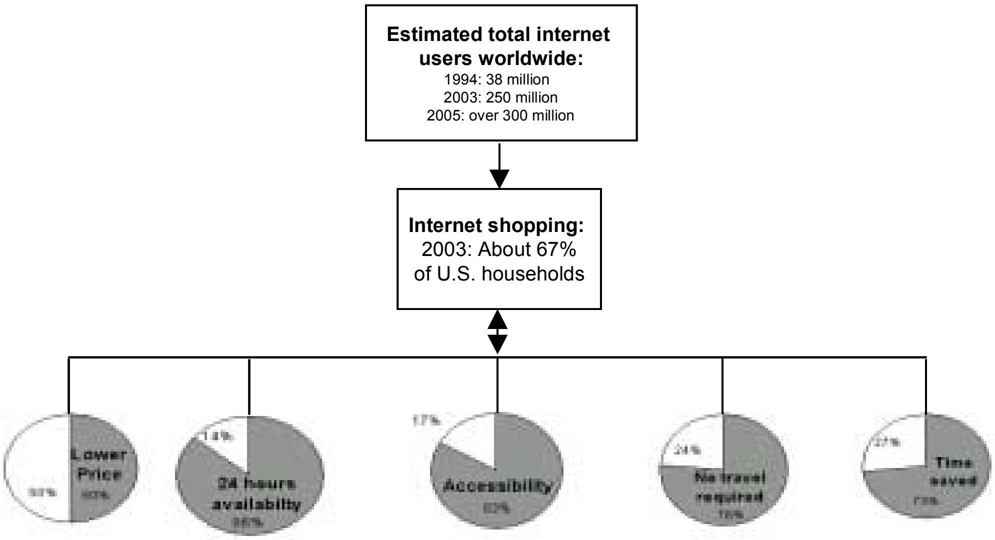
The following section presents a review of literature dealing with traditional customer satisfaction and customer service elements and with customer shopping on the Internet. Research methodology and empirical findings of Study Phases I and II are described in turn. Limitations of the present research and ideas for future research are presented.

II. LITERATURE REVIEW

CUSTOMER SATISFACTION AND CUSTOMER SERVICE

Conventional marketing research has illustrated the relationship of customer service variables with customer outcomes such as customer satisfaction [Bolton and Drew 1991; Fram and Grady 1995; Zeithaml and Berry 1993]. Customer satisfaction or dissatisfaction is the core concept of marketing and information systems [Kosiur 1997]. Every customer makes a purchase decision from the fundamental base of what is needed, where a needed item is available, and how purchases may be made conveniently. When an item is purchased through a conventional channel, the customer expects post-purchase services to be provided by the firm, even if only for the customer to know an adjustment may be made if the product or service is not as expected. Once post-purchase satisfaction is gained, the customer moves toward the stage of repeat-purchase intention. The feedback of positive or negative feeling determines the customer's next shopping manner.

Customer satisfaction is associated strongly and positively with repeat intentions [Patterson 1997]. Future purchase intentions have been found to be a function of prior intention [LaBarbera and Mazursky 1983] and of customer satisfaction and dissatisfaction [Oliver 1980]. It follows that lack of satisfaction with a Web site would lead to customer intention not to purchase from that site. Accordingly, this research has attempted to discover the elements of on-line shopping experiences that influence the shopper's satisfaction with the on-line shopping experience, leading the shopper to purchase from that site or alternatively to move to another site.



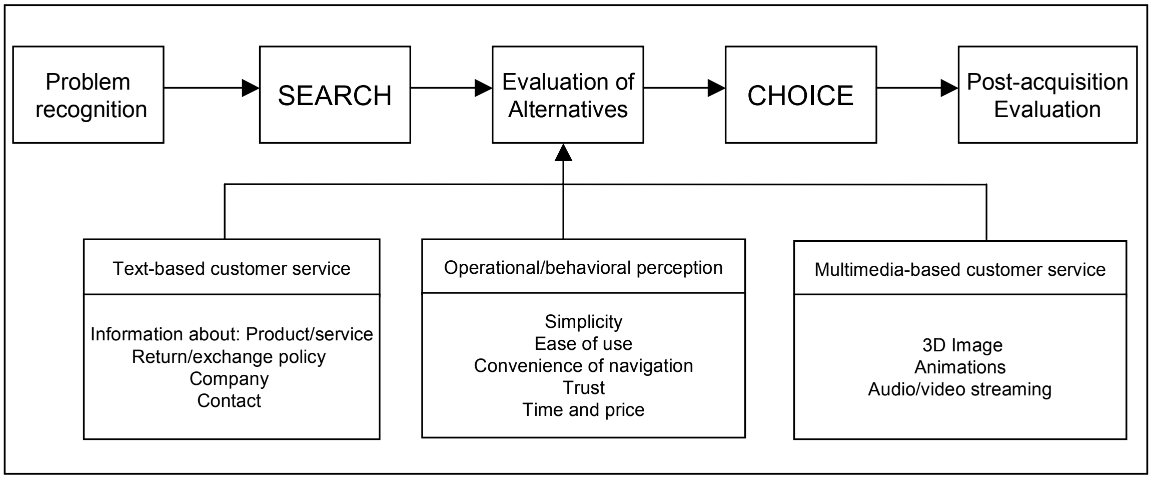
Sources: **http://www.datamonitor.com**, January 1999
http://www.yankeegroup.com, January 1999
http://www.cc.gvu.edu, 1998
http://www.nielsen-netratings.com, 2001

Figure 1. Internet Access and Motives for On-Line Shopping, Total Value of E-Commerce

ON-LINE SHOPPING BENEFITS

The MasterCard International [2001] report surveyed “heavy Web users,” finding that Web users shopping on-line were concerned more about convenience than about discount prices. For example, about 50% of the respondents cited lower prices as a motive for on-line shopping. By contrast, approximately 86% cited 24-hour availability, and 83% cited “accessibility from any Web-ready PC” as their chief motives. Slightly fewer—76% and 73% respectively—named no travel required and time saved as leading benefits of Internet shopping. Figure 1 summarizes possible benefits from on-line shopping (or on-line shopping motives) and illustrates the latent power (United States household Internet access) in the e-market.

Research has revealed that the growth of on-line shopping is dependent on factors of vast selection, screening, reliability, and product comparison [Alba et al. 1997]. Slightly more than 50% of the respondents in the Georgia Tech [1998] study listed easy handling of returns/refunds, customer services and after-sales support, and ease of contacting vendors as the most important factors in their decisions to shop on-line. To maintain high customer-satisfaction levels, firms are recommended to address these factors through different combinations of interactive functions that fit well into their Web communication strategy and site goal [Ghose and Dou 1998]. Based on these customer-oriented factors identified by previous researchers and recent developments in technologies, a model of the on-line shopper’s purchase decision factors is derived for the present study, as discussed below.


Problem recognition
SEARCH
Evaluation of Alternatives
CHOICE
Post-acquisition Evaluation
Text-based customer service
Information about: Product/service
Return/exchange policy
Company
Contact
Operational/behavioral perception
Simplicity
Ease of use
Convenience of navigation
Trust
Time and price
Multimedia-based customer service
3D Image
Animations
Audio/video streaming

Source: Adapted from J. Mowen, *Consumer Behavior*, 4th Ed., Englewood Cliffs, NJ: Prentice-Hall, Inc., 1995.

Figure 2. A Model of Alternative Steps of the On-Line Customer Decision Process

The model of alternative steps of the on-line customer decision process, adapted from a well-known model of the customer decision process [Mowen 1995] and illustrated in Figure 2, presents considerably more options for the on-line shopper than those depicted in Mowen's model for the conventional shopper. By including factors uniquely affecting the customer's decision process in the on-line environment, the present study alters Mowen's model to represent a conceptual customer decision model for the on-line environment. This altered model, presented in Figure 2, incorporates variables (Multimedia-based/text-based customer services and Operational/behavioral perception) thought to impact the on-line shopper's choice of alternatives.

In performing the search step illustrated in Figure 2, the on-line shopper can obtain instant results listing numerous possible sites for selection. Unlike the conventional shopper, the on-line shopper then can move back and forth readily between Web sites to compare options. Alternatives not meeting expectations can be dismissed quickly. Two or more alternatives that potentially meet expectations can be compared further and dismissed in a matter of mouse clicks. Thus, Phase I of this study was designed to explore the shopper's reactions to the unique shopping presentations of on-line retail Web sites.

III. STUDY PHASE I

METHODOLOGY

Although quantitative instruments such as survey questionnaires are a convenient and valid method for studying customer variables such as the elements important in shopping and purchase decisions, qualitative research methods such as interviewing can reveal the functioning of variables perhaps overlooked by survey designers. Thus, to develop in-depth understanding of the new concept of customer on-line shopping by investigating respondents' reports of their on-line shopping experiences, the current project was designed to employ the qualitative technique of existential phenomenology. With this data collection technique, the respondent is encouraged to describe in depth the personally experienced phenomenon—in this case, the experience of selecting and using an on-line site for completion of a customer purchase [Thompson et al. 1989]. In using this method rather than attempting to investigate customer on-line shopping by obtaining forced-choice responses to decontextualized variables, the researcher can attempt to learn the respondent's meaning of the experience within its lived context.

Since early in the 1930s, the existential phenomenological method has been employed widely in research. This method has been found epistemologically viable for exploring human experience because of its attention to the respondent's own contextualized description of an experience, in contrast to the positivist tradition of fitting the respondent's responses into categories predetermined by the researcher's assumptions. As summarized by Thompson et al. [1989], the core assumptions of existential phenomenology may be described through the metaphors of pattern, figure/ground, and view. Within a given context (in this case, the on-line retailer's Web site presentation as viewed on the computer monitor), a person derives a view that is the pertinent pattern (elements in the experience that are meaningful to the person). In the contextual setting, salient experiences stand out in contrast to unreflected or unimportant experiences [Thompson et al. 1989].

Existential phenomenology was selected among various qualitative methods such as case study and ethnography because of its attention to a respondent's individualistic, subjective expression of the actual, lived experience of the situation of interest. Such reflection on a single experience encourages the perceiver to focus on nuances that likely would escape the broader brush of a researcher's selection of choices among a pre-set list of quantitative dimensions or escape even the surface comparison of reports of respondents' experiences. Existential phenomenology encourages the respondent to consider a specific, lived event. The goal is to discover patterns of experiences [Thompson et al.1989].

Because the purpose of existential phenomenology is to describe experience as it is lived, the interview has been found to be a powerful tool for attaining in-depth understanding of another person's experience [Kvale 1983]. Research analysis of interview-derived information is considered valid because respondents' own words are used for understanding their experiences [Feagin et al. 1991]. Accordingly, respondents in this study were presented with a set of open-ended questions (Appendix A) designed to encourage them to discuss and describe their experiences in on-line shopping. That is, this study was designed to focus on the key on-line shopping elements that most concern on-line customers, not including all key customer-shopping factors investigated in traditional market studies.

For determining a specific set of key factors of critical concern to on-line shoppers, 23 respondents were enlisted for Study Phase I. Because not all of the general population has experienced on-line shopping, networking was used to obtain a purposive sample of individuals who have shopped on-line. A purposive sample is deemed appropriate for exploratory research designed to query respondents who have experienced a phenomenon of interest. Using the networking technique, the researchers identified individuals who have shopped on-line for customer goods/services. These respondents then were asked to name additional individuals who have experienced on-line shopping. Thus, aside from the requirement that respondents have experienced on-line shopping, demographic characteristics of the sample resulted by random chance. Demographic data of the participants are shown in Table 1.

Table 1. Demographic Descriptions of Respondents

	Demographic Information			
Respondents (Named)	**Age**	**Gender**	**Educational level**	**Frequency of Web search**
Faculty A (FA)	49	M	Doctorate	Often
Faculty B (FB)	38	M	Doctorate	Very often
Faculty C (FC)	52	F	Doctorate	Often
Faculty D (FD)	51	M	Doctorate	Very often
Faculty E (FE)	43	M	Doctorate	Often
Citizen A (CA)	36	F	Master	Often
Citizen B (CB)	47	F	Bachelor	Very often
Citizen C (CC)	47	M	Bachelor	Often
Citizen D (CD)	47	M	Bachelor	Very often
Citizen E (CE)	47	F	Bachelor	Very often
Staff A (SA)	32	M	Master	Often
Staff B (SB)	28	F	Bachelor	Very often
Staff C (SC)	28	M	Master	Very often
Staff D (SD)	28	M	Bachelor	Very often
Staff E (SE)	28	F	Bachelor	Often
Student A (DA)	31	M	Bachelor	Often
Student B (DB)	29	F	Bachelor	Very often
Student C (DC)	29	F	Bachelor	Often
Student D (DD)	29	M	Bachelor	Often
GStudent A (GA)	29	M	Master	Often
GStudent B (GB)	29	F	Master	Often
GStudent C (GC)	29	M	Master	Very often
GStudent D (GD)	29	F	Master	Very often

The majority of respondents were well-educated young adults, professional, affluent, comfortable with computer use, and already somewhat experienced with on-line shopping. In general, respondents had used the Internet to make purchases in the consumer goods classes of computer hardware and software, books, videos, and compact disks. Some respondents had purchased specialty food items and clothing, making such purchases, however, from familiar retailers.

Although this sample clearly is not representative of the population at large, the sample profile does correspond with currently identified typical on-line shoppers [Foley and Sutton 1998]. Thus, the experiences relayed by these respondents are considered to be a reasonable representation of a random sampling of regular Internet shoppers. A valid sample of known Internet shoppers ensures that the respondents' reports are based on their familiarity with the use of the medium rather than influenced by a one-time occurrence that may not be representative of on-line shopping. As a result, their reports are expected to have greater likelihood of generalization.

After respondents were assured of confidentiality and protection of their privacy, each interview, lasting 30 to 45 minutes, was tape-recorded. Each interview began with open-ended questions posed in a way to encourage the respondent to develop dialogue resembling a conversation, with the interviewer providing the context (ground) from which the respondent's descriptions of a shopping experience could flow freely and in detail. The beginning questions were designed to establish an understandable domain for beginning the dialogue (See Interview Question Guide, Appendix A), and additional questions emerged instinctively from the ongoing dialogue. Participants thus were encouraged to discuss not only their on-line shopping experiences but also their shopping attitudes and typical ways of shopping.

Transcriptions of the tape-recorded interviews were used for analysis by use of the hermeneutic circle [Kvale 1983], an interpretive technique [Thompson et al. 1989] that has received increasing attention in information systems research [Markus and Lee 2000]. The hermeneutic circle is a well-accepted social science method of interpreting respondents' experiences through analysis of the text of their reports. Through this method, the researcher attempts to assume the respondent's viewpoint and to set aside personal preconceptions of a situation or experience. The hermeneutic circle technique is an iterative interpretation process by which the researcher moves from a part of the text to the whole and back again repeatedly, attempting to understand the meaning from the respondent's viewpoint. After each interview is interpreted individually, the interpretive context is broadened as the researcher then attempts to identify common patterns among various respondents' interview transcripts, with these identified patterns referred to as themes [Thompson et al. 1989].

For the research reported here, the texts of the transcribed interviews were treated as a stand-alone body of data. Through use of the hermeneutic circle, we first individually studied the texts to identify themes expressed by each respondent. Preconceived notions of the researchers about the phenomenon (on-line shopping) were bracketed or held aside to ensure that interpretation would not be biased away from the respondents' views of their experiences. Other individuals can see, according to Giorgi [1986 as cited in Thompson et al. 1989], data patterns described by one interpretation. Such identification of themes is intended to improve interpretation, not to attain validation as known in quantitative methodologies. Derived themes are not to be expressed in abstract terms, but rather to be related directly to transcript passages that clearly point to the themes [Thompson et al. 1989]. Accordingly, after deriving individual themes by assigning a common term that appeared to represent a category of meaning in a respondent's text, each author then attempted to derive global themes from individual themes that were expressed commonly among respondents. Results then were compared qualitatively among the authors to obtain inter-judge agreement about terminology to represent the individual themes as well as global themes. Because of the small number of themes and small number of respondents, inter-judge agreement among the researchers was attained simply through discussion of theme names derived individually by the researchers. Agreement was reached for appropriate labeling of the most commonly repeated themes.

RESULTS

This research design provided the opportunity to examine on-line shopping as a progressive set of customer-enacted steps in a logical structure developing from problem recognition to choice evaluation, including confirmation of expectations. Such in-depth descriptions have been found useful for revealing emotional and behavioral underpinnings (such as expectations) of overt customer behavior. In reality, the very act of a respondent's describing a specific experience in depth frequently results in the respondent's derivation and description of further personal insights that arise through the revival of the experience. In the research described here, the respondents' descriptions of their on-line shopping experiences have offered the researchers insights into customer experiences in general—insights not likely to have surfaced in quantitative research. As described in detail in the following paragraphs, the themes that emerged from the 23 interviews include convenience/simplicity, readily available details about products/services, readily available customer-service policy information, price, privacy, and availability of newer technology.

In the following discussion, each theme is treated individually insofar as possible, although some overlapping themes have been paired. Those themes have been retained as representative of lived concerns of real customers in the following descriptions of themes. In Study Phase II, these themes were reconstructed to set up independent variables for quantitative analysis. Respondents whose on-line shopping experiences are described in the following paragraphs are identified by code as shown in Table 1.

Availability of Customer-Service Policy Information

DA explained that he is "concerned about their shipping policy...what they ship with, like UPS or FedEx, and how much the shipping costs will be." CB reported that "I typically always look for a return policy, and I want a phone number to call if I have a problem." Other respondents such as FC primarily purchase items from vendors whose policies are already known and thereby avoid concern with customer-service policies on-line. As FC explained, "If I were buying from an unknown company, I would be concerned [about return/exchange policy], but I've used known companies and avoided the unknown." CA reported, "always before putting an item in my 'shopping bag,' I search for return/refund policies. If they're not there or hard to understand, I use another vendor."

Along a similar vein, SB expressed displeasure with one vendor from whom she had made an on-line purchase: she expected the vendor "to be easily contacted and easy to work with. I called to return [a product] and the representative instructed me to send a note to a specified address along with my e-mail." She found that although she sent e-mail, the response often was sent automatically by the Web-based firm's server. Another respondent, DA, reported, "the site was difficult to contact. They had neither an e-mail address nor a phone number to get in touch with them." On-line shoppers appear to have specific expectations regarding the convenience of using an Internet marketer's Web site. If those expectations of services are not met, a site is quickly dismissed.

Use of Leading-Edge Audio-Video Technology: Image

According to SA, "the customer prefers to see a picture of the book. Just like bookstores prefer to show the cover of the book instead of the spine of the book, I prefer to see the cover of the book." Another respondent, SC, refers to the example of amazon.com. SC indicates, "I actually bought some books because the cover looked interesting." Some people may think that showing the cover is trivial; however, FB reported, "It is a disappointment if the cover of the book is not shown." Even on auction sites such as e-Bay, she prefers to go to the auction site that says, "graphic available." For buying merchandise on auction sites, she thinks that showing a picture of the product reflects the credibility of the seller. SB thinks that seeing not only book covers but many types of products is mandatory so the shopper can visualize the product that the seller is trying to describe or to see if the product suits the shopper. On-line shoppers appear to have specific expectations about marketers' use of audio and visual technology to enhance their Web sites. If those expectations are not met, a site may be dismissed.

It appears that customer navigation on a Web page is aided if a link to a site index is present on every page. For example, GB reported, "A graphic navigation bar on the top of the page is interesting. Contact information and shopping cart links should always be present where people can access them." As an example of this theme, CDNet.com has an option for the customer to surf the site index without the customer's losing the information that is viewed currently. The links provided on CDNet's site open a new concurrent window. Thus, it appears that opening a separate page from the site index would ease navigation for any user. For this reason, a link to customer service should be provided on every page.

Use of Leading-Edge Technology: Audio and Video Streaming

FA says, "Sound files are important. For example, CDNow.com provides links to the songs listed on a CD, and this helps decide on whether to buy the CD or not." However, GB finds it annoying that she is required to upgrade the version of the software that she currently uses. GC now has downloaded Real Player and the MP3 player. Other respondents such as SB reported that it really annoys her during her shopping if a pop-up message says her current version of software cannot play the file and she needs to upgrade (she experienced that message from a record company from Scotland). Along a similar vein, GA explained that if he really likes the product, he upgrades and listens to the product. But if not, "I just don't go back to the site." These comments relate directly to the theory of disconfirmation of expectations (lost sales). Web sites that do not recognize the software that a customer currently is using but instead require the downloading of new software from their Web site really frustrate the customer.

As for video streaming, FC has not encountered many video bytes; therefore, she buys most of the videos because she saw them on TV. However, FC reported, "If sound bytes were there on the Web, I would probably buy it." She thinks it would be good if the on-line retailer would make it easy for her to get any required software.

Using voice-activated systems would be of great help to customers with physical disabilities. For example, FB discussed his on-line navigation of special items needed, explaining, "People with a physical disability would be benefited best by the use of videos." GA also emphasized that, "People could use the camera to talk to someone instead of typing something out." Customer shopping on the Internet should be made acceptable to everybody including people with disabilities, and on-line retailers should take care to make their pages compatible with various browsers. For example, although streaming video links have helped customers such as SB purchase a product, she reported that she found it hard to navigate and it took a while to load because of net congestion and static breaks.

Convenience/Simplicity

According to SB, "the main reason I shop on the Web is for convenience. I can't drive due to a visual impairment. There are no taxis in town and very little public transit...not many shops in town. Goods on the Internet are readily available." CA made similar comments, noting "I can find items any time of day or night that either are not available locally or are available only in limited choices." CB reported that she shops on the Internet because it offers good "product availability" and she doesn't "have to run around the area trying to compare products among various stores." FC made a decision not to purchase from one site based on a single factor: the site's order form "was very inconvenient. I had to find the item in the on-line catalog, write down the item number, then return to the order form and enter the item, number, and price...too much work."

The issue of simplicity emerged repeatedly and emphatically through these respondents' descriptions of their Internet shopping experiences. As illustrated in the following discussion, simplicity is a critical variable in on-line shopping. Both CA and GC reported that because they don't have all the latest in fast computer equipment, they need sites that are (quoting CA) "not garbled up with so much demonstration of Web-page design expertise that I can't even download the site. I only use sites that I can receive in a few seconds." FC also said that she wants sites that are "easy to navigate; I like to find pictures of products, but a site doesn't have to have movement or entertainment value. It has to provide an easy shopping environment with information I need."

In a similar approach to the theme of simplicity, CB explained, "I use a search engine to find a product, then look at all the sites. If they're slow, I escape out. Two or three times I didn't buy because of all the bells and whistles on sites...too slow. A good site is one that's text-oriented and fast." FB said he likes for sites to

> size the page so the user doesn't have to scroll left and right to view...I can understand scrolling down, but scrolling sideways is too inconvenient.…Also, the front page should not be too busy or cluttered so that it's hard to find links.…It may look good in a magazine, but it may need cleaning up for a Web page. I like text-only pages available on the regular page. Text-only pages are easier to navigate.

FD reported that, "I like a clean, simple Web site; I'm not there for bells and whistles." He explained that he would not purchase from a site if it is "too complicated to weave my way through. I want two clicks."

Convenience/simplicity in this research is defined as the user's ease of accessing information about product/service characteristics needed for deciding whether to place an order, represented by the quick loading of the marketer's primary Web page and the no-scrolling format of the page. Just as a customer might leave a store if its presentation of products/services confuses the user enough to preclude access to easy location of needed items, on-line shoppers likewise may leave an on-line marketing site if its first page does not offer the user a simple approach to the location of needed information.

Presentation of Product/Service Information

In discussing her on-line purchases of special items needed because of physical disabilities, SB explained that she found that marketers' Web sites "allowed me to realize what was available...more knowledgeable (than local sellers)." FC reported that second to the importance of price, he considers product information "even more than warranty and available selection." CA also is highly influenced by available product information. She explained, "I like to know I am making the best purchase, so I study detailed information carefully and compare between brands and models. If I find a site that offers little information, I move on to another site." Similarly, DA reported that if detailed information is not available, he moves over to other sites.

DISCUSSION

The qualitative analysis indicates that, overall, respondents in this study have not had negative experiences in on-line shopping. However, their descriptions of their experiences suggest that marketers who hope to succeed in on-line retailing should give more attention to customer-satisfaction factors such as provision of product/service and contact information, use of leading-edge audio-visual technology, and convenience/simplicity of the shopper's experience.

As previously discussed, the themes uncovered in on-line shoppers' descriptions of their experiences led to quantitative research hypotheses regarding the relative successes of Internet marketing sites and their presentations on-line. The hypotheses based on these themes suggest comparative presentations of these independent variables between positive and randomly selected Internet marketers to determine whether the independent variables clearly influence a shopper's decision to purchase from a site or leave the site in favor of another.

IV. STUDY PHASE II

As suggested by [Jick 1979], "the use of multiple measures may also uncover some unique variance which otherwise may have been neglected by single methods" (p. 603). In contrast to the usual triangulation method of using qualitative techniques such as interviewing to gain additional insights into previously collected survey responses, triangulation also can employ the approach of deriving quantitatively testable hypotheses from themes expressed qualitatively in previously collected interview text. Accordingly, the themes uncovered in Study Phase I that probed on-line shoppers' descriptions of their experiences led to the formulation of quantitative research hypotheses regarding the relative successes of Internet marketing sites and their presentations on-line. The researchers were interested in learning whether the themes identified in qualitative research would be useful in identifying positive on-line retailers. The qualitative analysis of interviews about the on-line shopping experiences of customers pointed to variables of interest that have not been examined in other research [Jick 1979].

Among the various themes from the qualitative phase (Study Phase I), two themes—information readily provided (on customer-service and contact with the retailer firm) and convenience/simplicity (ease of finding and using product/service information)—were selected for analysis. These themes are the basis of four independent variables used for quantitative analysis. The hypotheses were designed to allow comparative presentations of these four independent variables between positive and randomly selected Internet marketers to determine whether the independent variables clearly influence the shopper's decision to purchase from a site or leave the site in favor of another. Figure 3 shows a final model of the hypothesized relationships.

"Positive on-line marketers" is defined as those on-line marketers appearing in Lycos' "Top 5% Firms." Although Lycos' list was generated for general purposes, the research reported here uses the term "successful on-line marketers" under the assumption that the greater number of hits to a site, the higher the rate of recognition by customers. This list, used in previous studies as a sampling source, is a "selective directory of top-shelf sites rated by the Web's most experienced reviewers" (**www.point.lycos.com**, 9/22/99). As explained by Ghose and Dou [1998], the Lycos Top 5% Firms is a rating method similar to *Consumer Reports*, derived from reports by experts who review Web sites. The reviews are based on specific guidelines that allow comparison of sites. Guidelines include content (thorough, broad, accurate, up-to-date), presentation (beauty and original design), and experience (intangible representation of the site's unique personality). These guidelines apply to each

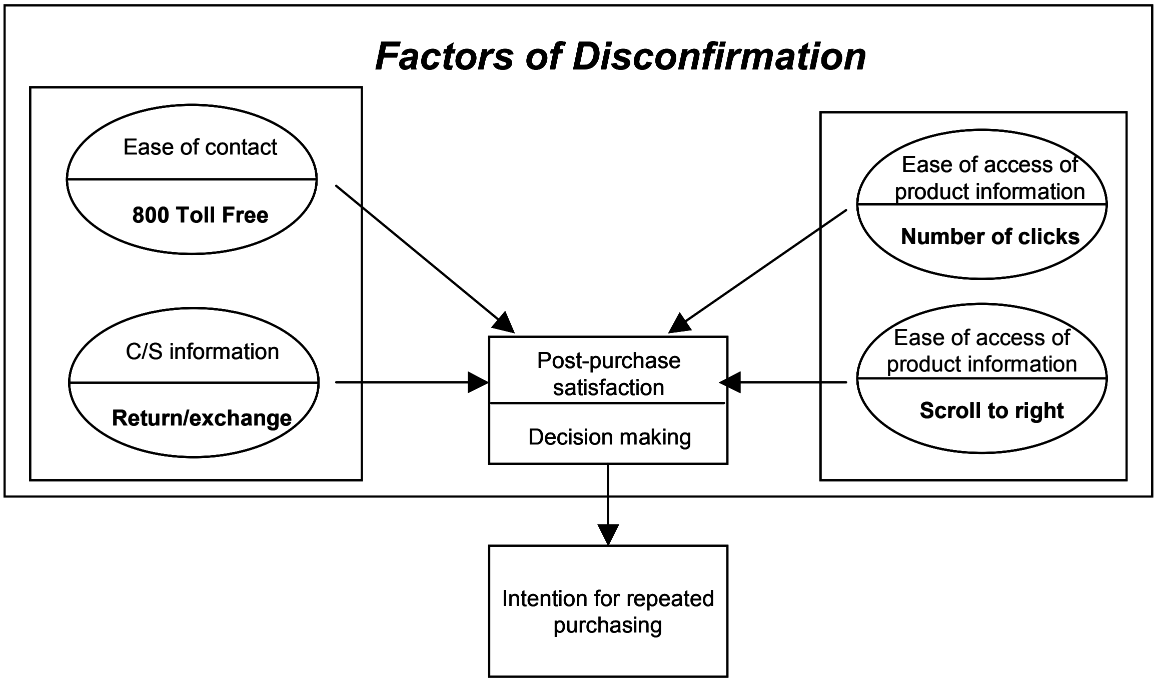

Factors of Disconfirmation
Ease of contact
800 Toll Free
C/S information
Return/exchange
Ease of access of product information
Number of clicks
Ease of access of product information
Scroll to right
Post-purchase satisfaction
Decision making
Intention for repeated purchasing

Figure 3. Research Model for Possible Disconfirmatory Factors from Themes

of several categories of listings, such as business or education [Ghose and Dou 1998]. The sample of randomly selected Internet marketers used in the research reported here was obtained from selections that resulted from topic searches in the search engine Yahoo.com.

Of the various reasons given by respondents for completing or not completing a shopping experience with a particular on-line retailer's Web site, two were selected for further investigation by quantitative analysis. Readily available information about customer service policies and the ease/simplicity of navigating a site to complete a purchase were themes identified in the text of reports by several of the respondents. Therefore, the following hypotheses were stated to guide further investigation of the importance of these two themes.

H_1: Positive on-line retailers' Web sites provide ready access to customer-service information such as refund/exchange policies.

H_2: The amount of customer effort required to access product/service information on positive on-line retailers' Web sites is significantly less than on randomly selected sites.

To investigate these hypotheses, 38 individual firms among the sites identified by Lycos Top 5% were selected from four industries whose products were purchased by the respondents previously interviewed. Of these 34 firms, nine sell computer hardware and software, eight sell books, nine sell videos and compact disks, and 23 sell toys and games. For comparison, 51 Internet marketers in these same industries (14 selling computer products, 12 selling books, 14 selling videos and compact

Table 2. Mean and Standard Deviation Comparison

	Lycos' Top 5%		**Random**	
Variable	Mean *	σ	Mean *	σ
No. of Clicks	2.421	1.11	3.961	1.17
Policy Info.	89.5%	0.31	27.5%	0.45
Phone Number	81.6%	0.39	47.1%	0.50
Streaming Tech	2.3%	0.001	0.2%	0.0004
Scroll to Right	21.1%	0.41	21.6%	0.42

*Denotes the figures for mean are interpreted as percentages of the number of sites which have information.

disks, and 11 selling toys and games) were selected at random from the lists resulting from a search of Yahoo.com, excluding those that appeared in the Lycos Top 5% list. Table 2 presents the differences of means and standard deviations between observations in the two groups. These means can be interpreted as a percentage of the number of sites providing associated information (policy information, phone numbers). For example, a mean of 0.895 (information for Lycos Top 5%) indicates 89.5% of sites in Lycos Top 5% group provide the policy information.

INDEPENDENT VARIABLES

To operationalize the constructs, four independent variables were selected. The variables represent the constructs that are the themes identified in Study Phase I (qualitative analysis of interview text), except "use of streaming technology." Streaming technology was not considered further in this study because it was not mentioned by enough respondents to be considered sufficiently significant among the variables. In other words, its omission does not imply that the streaming technology variable is not important. Rather, it is possible that too few sites were using streaming technology or it was in an infant stage at the time of this research. The four independent variables were selected as described next.

Two independent variables were used to represent ready access to customer service and policy information. The first variable, policy, was designed to operationalize ready access to customer-service information. If the first page of a retailer's Web site provided information about how to reach the retailer for inquiries about customer service and ordering policies, that site was classified as a positive site for comparison purposes in the analysis. The second variable, 800 Phone, also was used to represent ready access to customer-service information. If the information provided by the site clearly and readily provided contact information such as an 800 toll-free phone number and e-mail address, that site was classified as a positive site in the analyses.

Two additional independent variables were used to operationalize the amount of customer effort required to access product/service information. Clicks, the number of times a customer needed to click the mouse to reach information about the products or services offered by the on-line retailer, was used to represent customer effort required to access product/service information on the site. A commonality from the text of responses shows that four or fewer clicks are endurable on the basis of latency between pages. As further explained in the following discussion, sites that required four or fewer clicks to reach were classified as positive sites. Sites requiring five or more clicks to reach the product/service information were not further investigated to determine the precise number of clicks required to reach their pertinent information; that number in fact could have been any number from five clicks to infinity. Finally, scroll right as a part of commonalities of themes also was used to represent effort to access product/service information. A site that did not require significant sideways scrolling on a full-screen view to gain full access to the product/service information was classified as a positive site.

DEPENDENT VARIABLES

The dependent variables in this study are categorical: positive (defined as an event) and not positive (defined as no-event) on-line retail Web sites. Logistic regression can handle categorical variables easily. Thus, logistic regression (logit) was used in the quantitative analysis, with variables from the qualitative analysis set as covariates. In the logit technique, because the independent variables are a mixture of categorical variables (customer-service policy information; contact information, i.e., 800 toll-free number readily available; and scroll-right) and continuous variable (number of clicks), the multivariate normality assumption does not hold. Additionally, when the dependent variable has only two categories, as in this research, logistic regression is affected less than other techniques by the variance/covariance inequalities across the groups.

In our logit model, the logit function indicates the log of probability of being included in the positive group. The stepwise model was performed by the logistic method in SAS, for each entrance of a covariate into the model. For each measurement scale, we used a 15-inch computer monitor to navigate individual sites of on-line marketers. Table 3 demonstrates that all steps of each independent variable in the model (p = 0.0001) contributed significantly at the alpha level of 0.1. Association between predicted probabilities and observed responses indicate a good fit of this final model (for example, 64.9% at Step 1 when *Policy* was entered, 77.6% at Step 2 when the *800 Phone* was entered, and 85.9% at the final step when *Clicks* was entered into the model). Because Cronbach's alpha typically is used to evaluate internal consistency in non-dichotomous data, the proportion of variance attributable to the true score of the latent variable in this analysis (positive/not positive classification), scale reliability was checked by concordant/discordant rates (Table 3).

In this particular study, the positive firm is defined as an event and the not-positive firm as a non-event. The total number of pairs (1,938 pairs for this study) is the product of the number of events and non-events. That is, a concordant pair is described as the pair formed by an event and a no-event, with the estimator P-hat of the event higher than P-hat of the non-event. P-hat is discussed later in linking with other research questions.

The final model is expressed as:

$$\text{Ln}\,(p/(1-p)) = -0.7630 - 0.5903\,(\text{Click}) + 2.2053\,(\text{Policy}) + 1.3832\,(\text{Phone}) \quad \text{(Equation E-1)}$$

From this equation (see Table 4), it can be seen that the log of the probability of being a member in the positive group is positively related to Policy and Phone and negatively related to number of Clicks. In other words, the log of the probability of being excluded from the positive group is positively related to a *number of Clicks* and negatively related to *Policy* and *Phone.*

The equation

$$P/(1-p) = e^{-0.7630} \cdot e^{-0.5903*\text{Click}} \cdot e^{2.2053*\text{Policy}} \cdot e^{1.3832*\text{Phone}} \quad \text{(Equation E-2)}$$

Table 3. Stepwise Logistic Model Fitting Information and Significant Variables

Stepwise	Variable entered in the model	-2Log L			Residual			Concordant rate
		χ^2	d.f	p-value	χ^2	d.f	p-value	
Step 0	Intercept				40.1147	4	0.0001	
Step 1	Policy Info.	37.311	1	0.0001 *	11.0701	3	0.0114	64.9%
Step 2	Phone Number	43.513	2	0.0001 *	4.9789	2	0.0830	77.6%
Step 3	Number of Clicks	47.505	3	0.0001 *	1.0096	1	0.3150	85.9%

*Denotes significant contribution to the model fit at 0.1 level of significance.

represents the relationship between the independent variables and probability of being in the positive group. In solving the equation, we concluded that everything held constant. The probability of being in the positive group is increased by a factor of 9.073 (i.e., $e^{2.2053}$) for a unit increase in the customer-service policy information, by a factor of 3.988 ($e^{1.3832}$) for a unit increase in the 800 Phone, and by a factor of 0.554 ($e^{-0.5903}$) for a unit decrease in the number of Clicks.

The validation of the logit regression model was accomplished through the same method used for holdout samples in multivariate discriminate analysis (MDA). Table 5 also exhibits the classification matrix, which was obtained by using a cutoff value of 0.5 as a classification measurement from MDA. From the table it is clear that the overall classification rate of 77.7 is lower than that of MDA (79.77), meaning the logit model is much more conservative (see Table 5).

Table 4. Analysis of Maximum Likelihood Estimates Comparing Variables for Lycos' Top 5% Sites

Variable	d.f	Parameter estimate	Standard error	Wald χ^2	Pr > χ^2
Intercept	1	-0.763	1.3436	0.3225	0.5701
No. of Clicks	1	-0.5903	0.3063	3.7146	0.0539 *
Policy	1	2.2053	0.7327	9.0596	0.0026 *
Phone	1	1.3832	0.6311	4.8042	0.0284 *

*Denotes significant contribution to the model fit at 0.1 level of significance.

Table 5. Classification Table for Cutoff Value of 0.5

Actual	Predicted		Total
	Significant	Non-significant	
Random	12	39	51
Lycos Top 5%	30	8	38
Total	42	47	89

A summary of the stepwise procedure indicates that all the fit statistics except the scroll-to-right variable indicate good model fit and a statistically significant relationship between the independent and the dependent variable. As illustrated in Table 3, this analysis serves to support Hypothesis 1 (both variables Policy and 800 Phone) and partially to support Hypothesis 2 (variable Clicks). (However, an intriguing question arising from the analysis described above is how well this logit regression model can predict the classification of positive/not positive for a future observation.) Somer's D, Gamma, and Tau-a analyze the association of predicted probabilities and observed responses. Theses statistics assess the rank order correlation between P-hat and the observed responses. Equation E-2 can be modified as,

$$P = 1/(1+ e^{-(-0.7630 -0.5903*Click + 2.2053*Policy + 1.3832*Phone})) \qquad \text{(Equation E-3)}$$

Then, from equation E-3, the probability of being positive may be calculated. Classification of observations is done by the estimated probability, the P-hat, of each observation belonging to a given group. The classification of observations into groups is based on a cutoff value for P-hat, which usually is assumed to be 0.5. All observations with P-hat greater than or equal to 0.5 are classified as most positive, and those with P-hat less than 0.5 are classified out of the positive group.

For example, if a site provides customer-service policy and contact information and the number of Clicks to access the information is less than two, P-hat from equation E-3 is 0.838. This number means that the probability of being positive is very high, or at least the firm satisfies the customer's need. If a site does not provide "customer-service policy and contact information" and the number of Clicks to access other information is more than five, P-hat from the equation E-3 is 0.023. This number means that the probability of being positive is very low because the firm never confirms the customer's expectation. Based on the above logit model analysis, we conclude that the impact of customer-service policy and contact information and convenience/simplicity on the sites appears to be important for being identified in a positive group such as Lycos' Top 5% list.

V. DISCUSSION

This study originally was designed to learn directly from customers who shop on-line which Web-site factors most influence customer decisions to purchase from a particular on-line retail marketer. Analysis of interview texts revealed several common themes (convenience/simplicity, product/service and customer-service contact information availability, streaming technology, price, privacy/security) subsequently judged to warrant further investigation. Two of the themes, customer-service contact information availability, and convenience/simplicity, were operationalized for quantitative analysis.

Based on the overall results from the qualitative and quantitative analyses, it appears that three independent variables (i.e., Policy—customer-service; Phone—contact information readily available; and Click—convenience/simplicity in use of the site) are key factors in identifying positive on-line retailers. Respondents in this study proceeded with shopping at a site where customer-service information was readily provided; they continued their shopping activities unless/until the site proved too complicated to navigate. Quantitative analysis confirms that a site may be dismissed from customer consideration if typical product/service and customer-service information is not readily available or if too many clicks are required for the customer to find salient information. In other words, disconfirmation of expectations about a site's presentation may lead the customer to discontinue shopping at that site.

Respondents reported that they expected to locate on a site all of the product/service and customer-service information they expected. If all of the expected information was not readily available, they would discontinue their intention to purchase from the site. Quantitative analysis confirms that a significant difference exists between Internet marketers that do and those that do not readily provide customer-service information, such as a toll-free telephone number and return/ exchange policy.

Respondents indicated that they were likely to dismiss consideration of an Internet marketing site if it was too complicated—if too much sideways scrolling or too many mouse clicks were needed to navigate to salient information. Although the scrolling factor was not found significant in distinguishing positive from randomly selected Internet marketers, the number of mouse clicks (four or fewer clicks for “successful” simplicity) did make that distinction. Significantly more of the Internet marketers in the Lycos Top 5% than those in the randomly chosen lists were in the four-or-fewer-clicks category.

Finally, although not many Web-based firms using streaming technology were included in this study, it is obvious that the era of text-based on-line customer service has been in transition to the era of multimedia-based full service. Although streaming technology variables were not tested in this study because of the number of possible intrinsic/extrinsic factors, we believe that multimedia-based service (3D image, voice/video, and animation) in Web-based firms is an alternative approach for communicating with customers in B2C.

Of the limitations of this study, many lead to ideas for future research. This study began with a limited number (23) of interviewed respondents and the themes resulting from qualitative analysis. The respondents’ textual responses certainly might not be representative of a larger population. Most of the interviewed respondents had a relatively sophisticated level of comfort with computer use and Internet navigation, and most were young and well educated. Thus, future interview research with additional on-line customers, a sample with varying levels of on-line shopping experience and with diverse age and educational demographics (including mid- or low-education group of subjects, different levels of income), can enhance findings of the present study. In addition, laboratory experiments may well offer additional in-depth understanding of critical factors that impact on-line shopping decisions.

The Lycos Top 5% list is assumed a reasonably valid method for selecting on-line marketers that best reach and serve on-line customers. Yet, reviewers employed by Lycos.com selected the Lycos Top 5% list. Thus, the methodology of the current study might be improved through first surveying on-line customers to identify a list of Internet marketers whose Web sites are considered most favorably. A list of variables then might be extracted from such a survey for use in quantitative analysis to further enhance understanding of the site elements that distinguish positive on-line retail marketers.

Finally, the model designed and used in this research is a content model only. Interjecting process elements would greatly enhance the ability of the model to explain on-line shopping. For example, as an on-line shopper goes through the process of moving through one retailer’s Web page, learning occurs. The shopper may learn the particular arrangement of the elements in that retailer’s Web site and thereby become comfortable with using that site. The learning process might then become a switching barrier against that shopper’s trying competing Web sites of the on-line retailer’s competitor’s [Jones et al. 2000]. A switching barrier is similar to the concept of “lock-in” [Arthur 1989]. In other words, through the customer’s learning to navigate the first on-line retail Web site, that site would become locked-in for the customer and other sites locked-out by the first site’s offering greater returns of efficiency to the customer. This phenomenon would be appropriate for investigation in relation to on-line shoppers’ disconfirmation of expectations. As described by David [1985], the expectation that the first product used will be superior to any subsequently offered product becomes an influence that leads an individual to reject the consideration of a subsequent offering, thus locking in the individual's acceptance of the first product. "Consumer expectations can easily become self-fulfilling" [Shapiro and Varian 1999]. In other words, the customer's expectation having been confirmed by the first site, subsequent sites simply may not be explored. It could be very revealing to research the customer's attitude toward a first-used site to determine whether learning that site does indeed represent a switching barrier against using other sites—a lock-in with the site first learned.

VI. CONCLUSION

This study has been an exploratory investigation of the question of the key on-line retailers' Web-site factors that influence on-line shoppers in their purchase decisions (thereby resulting in confirmation or disconfirmation of expectations). The study began with in-depth exploration of shoppers' views about on-line shopping. Then key factors identified from first-hand reports of the shoppers' experiences were used to guide examination of Web sites of on-line firms. These key factors are themes beyond the general key factors (such as convenience, time, and trust) examined in traditional marketing studies.

Through the investigation of the two hypotheses concerned with only four of numerous possible independent variables, the research resulted in identifying several important implications for researchers and on-line marketers alike. First, the qualitative interview technique has identified variables not yet emphasized or investigated by other researchers. Second, the research project has demonstrated the value of qualitative inquiry in research streams generally dominated by quantitative inquiry. Third, the study has added to a growing awareness of the value of triangulating qualitative and quantitative techniques. Finally, the research has suggested that on-line retail marketers should emphasize the ease of navigation, the ease of finding critical information, and the quality of the detailed customer service information provided on their Web sites.

On-line marketing is being found to include a mix of conventional marketing distribution and advertising variables, combined with a mix of emerging electronic communication variables, including human-assisted e-commerce. This mix includes the harnessing of streaming technology to create icons and connections for live contact and "callback" customer assistance [Decina and Trecordi 1999]. Fitting these variables within a model of customer behavior promises to be a daunting task. The study described in this article has been a small but productive effort to contribute to understanding of business-to-customer e-commerce.

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X. APPENDIX A

INTERVIEW QUESTION GUIDE

Interviewer:
"__________________ (name) has told me you have experience in purchasing consumer products on the Internet. I will be asking about your experiences and your opinions about Internet shopping."

1. How long have you been buying products on Internet sites?
2. What types (classes) of products have you purchased through the Internet?
3. How many times do you estimate you have purchased consumer products on the Internet?
4. Why have you chosen to use Internet sites to purchase these products?
5. How do you choose a company's site to use for shopping?
6. Can you tell me about a recent shopping experience on the Internet?
7. Can you tell me about your first shopping experience on the Internet?
8. What things are important to you in your decision to make a purchase on the Internet?
9. What things would lead you to decide NOT to make a purchase from a particular site?
10. What kinds (classes) of products would you NOT consider purchasing from Internet sellers, and why?
11. What would you like Internet sellers to do differently in their Internet presentations of the products they offer for sale?
12. Do you have any additional comments or observations about your Internet shopping experiences?

If no mention of company policies on returns, refunds, exchanges, ask about these;

13. Are you concerned about company policies such as for returns, refunds, and exchanges? How do you handle these concerns when you shop on the Internet?
14. Are you concerned about being able to contact company personnel directly if you have questions, concerns, and problems? How do you handle these concerns when you shop on the Internet?

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