

The Impact of Perceived Channel Utilities, Shopping Orientations, and Demographics on the Consumer's Online Buying Behavior

Abstract

This study proposed and tested a model of consumer online buying behavior. The model posits that consumer online buying behavior is affected by demographics, channel knowledge, perceived channel utilities, and shopping orientations. Data were collected by a research company using an online survey of 999 U.S. Internet users, and were cross-validated with other similar national surveys before being used to test the model. Findings of the study indicated that education, convenience orientation, experience orientation, channel knowledge, perceived distribution utility, and perceived accessibility are robust predictors of online buying status (frequent online buyer, occasional online buyer, or non-online buyer) of Internet users. Implications of the findings and directions for future research were discussed.

Introduction

Electronic commerce is fundamentally changing the way consumers shop and buy goods and services. Consumers have begun to learn how to act in an ever-changing electronic market environment. Like any diffusion of innovation, there is a learning curve for most consumers to behave in electronic commerce in a way they feel the most comfortable. For some consumers, shopping and buying online have become part of their daily lives, whereas others may consider it, without taking any action yet. What factors can explain the differences in online buying behavior among Internet users? Our purpose in this study is to identify what factors determine whether Internet users choose to buy or not buy online, and how frequently they make such purchases.

This study focuses on factors that are deemed important from both theoretical and practical perspectives. Although demographics are useful in describing characteristics of online shoppers and buyers, other factors may profile this new group of consumers better. This study investigates the impact of shopping orientations on how consumers use the Internet as a buying venue. It also examines the influence of channel knowledge and perceived channel utilities. Finally, the study proposes a conceptual model of online buying behavior and tests it using empirical data from a national online survey.

Channel Theory

Marketing activities occur through various channels. Kotler identified nine functions of marketing channels, including information, promotion, negotiation, ordering, financing, risk taking, physical possession, payment, and the actual transfer of product ownership. Peterson, Balasubramanian, and Bronnenberg (1997) stated that all marketing functions are carried out through three distinctive types of marketing channels: communication channels, transaction channels, and distribution channels. By definition, communication channels enable the flow of various types of information between buyers and sellers. Transaction channels realize ordering and payment activities between buyers and sellers, and distribution channels facilitate the physical exchange of products and services between buyers and sellers. Stewart, Frazier, and Martin incorporated marketing functions into two types of channels: communication channels and distribution channels. The latter has a broader definition, meaning "a mechanism through which a product or service can be selected, purchased/ordered, and received by a segment of the firm's customers." (p.190)

Although conceptually distinct, in the context of consumer decision making, these channels frequently overlap, and a given channel may be responsible for multiple functions. The multi-functionality can be best demonstrated in an online store. For instance, a software program can be advertised, paid for, and distributed to a consumer through the Web. In this case, the Web serves the functions of communication, transaction, and distribution channels. For non-digital products such as computer hardware, clothing, or wine, the Web is not able to function as a distribution channel.

For consumers, the utility of a communication channel is to meet their information needs for decision making. Consumers do not shop for every product; they shop only when they need to make a choice in complexity. Consumers are likely to employ a phased decision process, first filtering available alternatives and then undertaking detailed comparison of the reduced consideration set. Bettman suggested that a phased decision strategy, with an elimination phase and a choice phase, is likely to be used when the number of alternatives is large. This typical decision strategy requires quantity and quality of information. Quantity of information is important because it helps consumers form their consideration set of alternative brands. Quality of information about brands refers to accurate and current information and is essential when consumers need to make their final choices. For instance, consumers must know the availability and current price of a product before they can make the purchase. Thus, the utility of a communication channel can be judged on its attributes of quantity, quality, and recency of information.

The function of a distribution channel, as broadly defined, is to facilitate the payment and transfer of the ownership of a product. The characteristics of a distribution channel consists of the factors that affect a purchase decision process, from selecting a brand, making payment, access to the good bought, to post-purchase service. Based on previous research, we have identified six attributes that may affect which distribution channels a consumer chooses. These attributes are pre-purchase inspection of products, security of payment, prompt access to goods bought, easy exchange and return, and other post-purchase service. They are used in the comparison of different channels in this study.

Channels may be different not only in their utilities for consumers in terms of communication and distribution but also in terms of accessibility. Channel accessibility can be defined as the degree to which time and effort are involved in using a channel. Accessibility can be compared between members in a channel category or between different channel categories. For instance, access to a retail store may need a car and time driving to the store. For access to the Web a consumer needs a computer or TV with an Internet connection and knowledge of surfing the Internet. In a similar fashion, effort is needed in using a channel. Users surfing the Web for product information need to type in commands and to examine the resulting Web pages. These efforts are considered costs to the consumer for using the channel.

In addition, the way in which information is available in a channel also impacts the effort a user needs, including the ease of customizing information and degree of interactivity. As the amount of information increases, searching and identifying information that is relevant to specific needs have become difficult and time consuming. Thus, consumers prefer communication channels that can customize information automatically. Interactivity is another aspect of channel accessibility in that it affects the user's effort. Although interactivity has been defined differently in previous studies, response time and response contingency are two key elements of interactivity in communication. In an interactive channel, a user can get a relevant response to his or her request in real time.

In summary, marketing channels vary in terms of their attributes in communication, distribution, and accessibility. This study assumes that a consumer will consider a channel high in utility if it is perceived to excel in its attributes in these three dimensions. This study proposes the first hypothesis:

H1. Consumers who make online purchases perceive the Web to have higher utilities in communication, distribution, and accessibility than those who do not make online purchases, and frequent online purchasers perceive higher utility than occasional online purchasers.

Actual use of the Web as a shopping channel not only requires certain resources, it also requires knowledge about the Web or "Internet literacy." Consumers undergo a learning curve in adopting a new channel, and the shape of the curve may be different for various consumers. One would expect that consumers with different levels of channel knowledge tend to feel differently about using the Internet for shopping and buying purposes. A consumer with more knowledge of the Web is more likely to have a positive perception of the channel utilities, which, in turn, will have a positive impact on actual online purchases. Channel knowledge also may affect the frequency of online purchases.

H2. Consumers who make online purchases consider themselves more knowledgeable about the Web as a channel than those who do not make online purchases, and frequent online buyers consider themselves more knowledgeable than occasional online buyers.

Shopping Orientations

Shopping orientations are related to general predisposition toward acts of shopping. They are conceptualized as a specific dimension of lifestyle and operationalized on the basis of activities, interests and opinion statements pertaining to acts of shopping. Efforts have been made to classify consumers into distinct segments primarily for targeting purposes. In a seminal study, Stone identified four kinds of shopping orientations: economic, personalizing, ethical, and apathetic. Others developed a three-group taxonomy of shopping orientations: inactive shopper, active out-shopper, and thrifty innovator. Lumpkin in studying elderly consumers, identified three additional distinct segments: uninvolved shopper, inflation-conscious shopper, and actively, highly involved shopper. Korgaonkar examined six groups of shoppers: recreational shopper, brand-loyal shopper, store-loyal shopper, price-oriented shopper, psych-socializing shopper, and time-oriented shopper.

Shopper typologies have also been developed for specific product categories. For instance, Furse, Punj, and Stewart profiled automobile shoppers into four categories. Constructive shoppers work hard at gathering information from Consumer Reports and showrooms. Surrogate shoppers depend heavily on others for information search and evaluation. Preparatory shoppers spend more time talking to friends, rather than spending time with in-store sources. Routinized shoppers spend relatively less time on information search but exhibit considerable loyalty to the same brand and dealer because of past satisfaction.

Findings are mixed with regard to the major characteristics of non-store or home shoppers. Convenience and recreational orientations were found to be related to catalog shopping. A broad examination of non-store shoppers found them to be younger, venturesome, and recreational. Another study suggested those home shoppers as thrifty innovators, having lower income and focusing on time management.

Online stores attract shoppers with certain orientations. In a recent research report, Greenfield Online found that online shopping is preferred over in-store shopping by some Internet users because of its convenience and time savings. However, the study also found that an overwhelming 69 percent of Internet users said shopping at stores and malls allows them to see, feel, touch, and try on the products before they buy them. These findings suggest that the consumers who value convenience are more likely to buy on the Web, while those who prefer experiencing products are less likely to buy online.

These findings are consistent with the current situation of most online stores. At present, the Web has demonstrated its large capacity for disseminating information of various kinds. Many online storefronts are full of information that is searchable. That is, consumers can examine search attributes of products such as sizes, models, and prices. With the help of shopping robots, consumers can search information about products from different online stores with one search request. Consumers can also "experience" certain digital

products online. For instance, they can play a segment of a music CD or download a trial version of a software program to their immediate satisfaction. Consumers also can experience non-digital products such as wines or cosmetics indirectly through reading testimonials online. However, today's online stores have a limited capacity for consumers to experience tangible products.

In addition, sometimes consumers shop for reasons other than obtaining products. Tauber noted that consumers often shop out of personal motives (role playing, diversion from the routine of daily life, self-satisfaction, learning about new trends, physical activity, and sensory stimulation) and social motives (social experiences outside the home, communication with others having a similar interest, peer group attraction, status and authority, and pleasure of bargaining). Although some online stores offer auctions, chat rooms, and other functions, they cannot compete with retail stores in meeting many of the "recreational" needs. Based on the above discussion, this study proposes the following hypotheses:

H3. Consumers who make online purchases are more convenience-oriented than those who do not purchase online, and consumers who make frequent online purchases are higher in convenience orientation than those who make occasional online purchases.

H4. Consumers who make online purchases are lower in experiential orientation than those who do not purchase online, and consumers who make frequent online purchases are lower in experiential orientation than those who make occasional online purchases.

H5. There is no difference in the recreation orientation between consumers who make online purchases and those do not make such purchases, and no difference exists in recreational orientation between frequent online purchasers and occasional purchases.

In analyzing retailers' reaction to the Internet, Alba, Lynch, Weitz, Janiszewski, Lutz, Sawyer, and Wood stated that the most significant threat posed to conventional retailers by interactive home shopping is that profits will be eroded drastically by intensified price competition that will ensue as consumers' search costs are lowered. While online operations of established retail stores attempt to avoid price wars, new entrants in electronic commerce have adopted a policy of selling goods at a loss in order to attract customers and build a brand name in the hope that they can make profits in the near future. Loss leaders are occasionally available in online stores but search costs still exist because of the lack of efficient cross-website shopping robots at this time. A recent McKinsey & Co. study found more than 80 percent of online shoppers do not compare prices before buying. To examine the price-orientation of online shoppers, this study proposes the following:

H6. There is no difference in price orientation between consumers who make purchases on the Web and those who do not make such purchases, and no such difference exists between frequent online purchasers and occasional online purchasers.

Demographics

There are some demographic differences among Internet users. Gender differences, albeit continuing to diminish, still exist, as indicated in a national survey by Mediamark Research Inc. In the spring of 1999, approximately 64.2 million U.S. adults, 32.5% of the adult population, used the Internet and 51.4 percent of the past 30-day Internet users were men. As for online shopping, Greenfield Online's study found that more men made purchases on the Internet than women (79 percent compared to 70 percent) in the past 90 days. In addition, more high-income (\$75K+) users make online purchases than low-income (\$35K or less) users (80 percent compared to 65 percent). Although those statistics seem to be consistent with conventional wisdom, no significance tests were reported for these numbers. Thus, this study investigates demographics of online buyers.

Because education is often positively correlated with an individual's income and it also predicts the level of Internet literacy, this study assumes that education is a significant factor that affects online buying behavior. In regard to age, the popular press often reports that younger users spend more time on the Internet than older folks and that younger users are also more knowledgeable about the Internet in general. No empirical data were found to suggest age differences in online buying behavior. Thus, this study proposes these hypotheses:

H7. Consumers who buy online are better educated than those Internet users who do not, and frequent online buyers are even better educated than occasional online buyers.

H8. More male Internet users buy online than female Internet users, and more male Internet users are frequent online buyers than female Internet users.

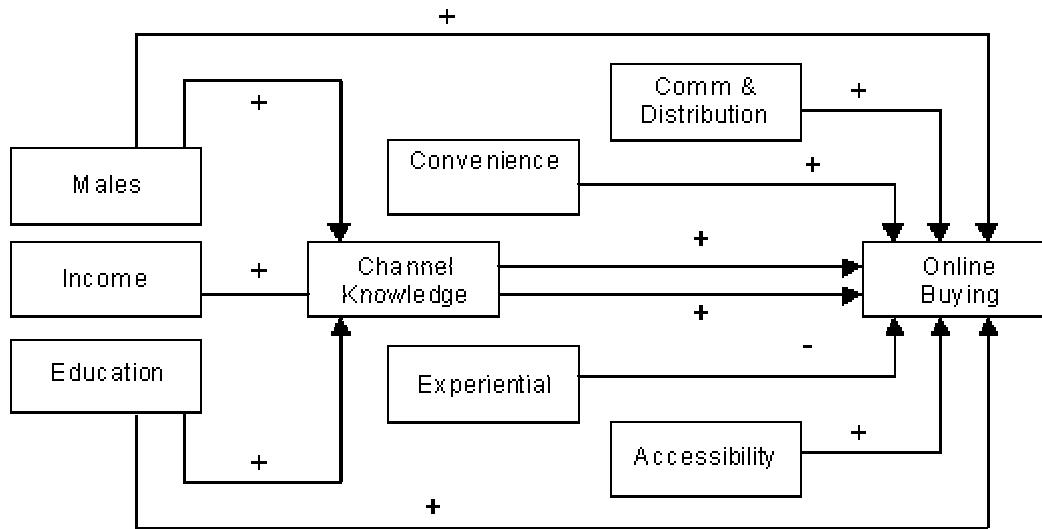
H9. Income is higher for Web buyers than non-Web buyers and higher for frequent Web buyers than occasional Web buyers.

H10. Age differences are not significant among three types of online buying status (non-, occasional, and frequent online buying).

A Conceptual Model

Summarizing the hypotheses, this study presents a conceptual model of factors affecting online purchase behavior. As diagrammed in Figure 1, whether consumers purchase online and how frequently they buy online is dependent to certain degree on their channel knowledge and perception of channel utilities. Consumers' online buying behavior also is affected by two shopping orientations. We predict that a convenience orientation will have a positive impact, whereas an experiential orientation will have a negative impact. Recreational and economic orientations will have no impact on consumer online buying behavior, so they are not shown in Figure 1. Gender, income, and education will, we predict, affect the level of channel knowledge and indirectly influence online buying behavior. To show the direction of gender influence, male (instead of gender) was used in Figure 1.

Figure 1. A Conceptual Model on Consumer Online Buying Behavior



Methods

ClickinResearch, an Austin, Texas company specializing in online marketing research, collected data for this study. A survey was conducted on a private Web site administered by the company. A sample of respondents, drawn from the company's Cyberleague™ online panel of approximately 50,000 Internet users, was invited by e-mail to participate in the twenty-minute survey. The panel members were recruited online and participated voluntarily. Incentives such as free telephone cards were used to increase participation. Thus, the panel was a product of self-selection and its members should be considered active Internet users. The sample was selected from the panel so that its respondents approximated the demographic composition of Internet users in the U.S. Data collection lasted less than three weeks. Two follow-up e-mail reminders were sent, at five-day intervals during the survey period, to individuals who had not yet responded.

Post-stratification adjustments were used to select complete cases on a random basis into the final sample, according to age and gender composition of the Internet users, resulting in a total of 999 respondents, with an overall response rate of 65 percent. Among the respondents, 57 percent were males. Twenty one percent were age 21 or younger; 29 percent were between ages 22 and 29; 25 percent were between ages 30 and 39; 16 percent were between ages 40 to 49; and 8 percent were age 50 and older.

A proprietary online survey program was used for data collection and preparation. When the survey was completed, data were output into an SPSS system file for analysis. Routine quality control procedures were followed, and no errors were found in data preparation.

Measurement

The dependent variable of the study, the consumer's online buying behavior, was measured by asking about how many times the respondent made purchases on the Web in the past three months. The response categories were: "never," "1-3 times," "4-6 times," "7-10 times," "11-20 times," and "more than 20 times." For analysis, these categories were recoded into three levels: "never" for non-Web buyers, "1-3 times" for occasional Web buyers, and "4 times or more" for frequent Web buyers. The respondents who did not

answer this question were eliminated from the analysis, resulting in an effective sample of 981. The sum of occasional and frequent Web buyers was 73 percent, almost identical to the Web buyer portion (74 percent) documented in another national online survey (Greenfield Online, 1999), which measured the frequency of online purchases in the past 90 days. The present survey measured the same behavior "in the past three months." Using online-recruited samples, the respondents in both surveys can be considered to represent somewhat experienced and heavy Internet users. That being said, the results are likely to be more predictive of the future than descriptive of the present.

Perceived channel attributes were measured by asking the respondent to rate 12 channel attributes. The rating scale ranged from 1 to 5, with 1 indicating an attribute was "very weak" and 5 "very strong" for a channel. The 12 channel attributes were: quantity of information, update of information, ease of information customization, degree of interactivity, convenience of accessing, degree of effort in using, wide selection of goods, pre-purchase inspection, security of payment methods, prompt access to goods purchased, post-purchase service, and ease of exchange or return. Because of the assumption of three factors (communication, distribution, and accessibility) underlying these channel attributes, exploratory factor analysis was requested to extract three factors. They account for 57 percent of total variance, with the first factor 25 percent, the second 18 percent, and the third 14 percent. The resulting factor loading and reliability coefficient for each factor are in Table 1.

Measures and Factors	Factor Loading		
	I	II	III
<u>Communication Utility ($\alpha=.65$)</u>			
Wide selection of goods	.774		
Updated information	.693		
Quality information	.691		
<u>Distribution Utility ($\alpha=.84$)</u>			
Ease of exchange and returns		.799	
Prompt access of goods purchased		.787	
Post-purchase service		.782	
Security of payment means		.731	
Pre-purchase inspection		.719	
<u>Accessibility($\alpha=.66$)</u>			
Effort for using			.820
Degree of interactivity			.530
Convenient accessing			.527
Ease of information customization			.501

Table 1. Perceived Channel Utilities: Communication, Distribution, and Accessibility

Channel knowledge was measured by asking the respondents to rate to what extent they knew which Web sites were the best for specific product purchases. The response categories were: "very little," "not very much," "somewhat," and "very much."

Shopping orientations were measured by a series of statements, with responses ranging from "strongly disagree" (1) to "strongly agree" (5). The statements were factor analyzed and reliability coefficients were calculated for the scales. There was no cross loading between factors. The results are presented in Table 2.

Statements and Factors	Factor Loading
<u>Recreational Orientation ($\alpha = .69$)</u>	
Window-shopping is usually a pleasant experience for me.	.815
I like to shop around and look at displays.	.766
I never feel bored when I go shopping.	.714
<u>Experiential Orientation ($\alpha = .73$)</u>	
I like to see and touch products before I buy them.	.798
I hate buying things without seeing what I am getting.	.786
I like to try it before I buy a product.	.743
<u>Convenience Orientation ($\alpha = .56$)</u>	
I hate to wait in long lines for checking out goods.	.752
Saving time while shopping is very important to me.	.725
I want to be able to shop at any time of the day.	.647
<u>Economic Orientation ($\alpha = .64$)</u>	
Being a smart shopper is worth the extra time it takes.	.685
I like to shop around for the best buy.	.677
I like to consider a wide selection before making a purchase.	.626
I feel great whenever I have gotten a good deal.	.555
Having a wide selection of goods to choose from is very important to me.	.502

Table 2. Four Types of Shopping Orientations

The Respondents were asked several demographic questions, including gender, age, education, and income. The response categories for age were "under 21," "21-29," "30-39," "40-49," "50-65," and "over 65." The response categories for education were "did not finish high school," "high school graduate," "some college," "college graduate," "some graduate school," and "graduate degree." The original categories for age and education were used in analysis without recoding.

Twelve response categories were used to measure the variable of income, ranging from "less than \$10,000" to "\$160,000 or more." Four new categories were created for analysis: low income (\$29,999 or less), low medium (\$30,000 to \$49,999), high medium (\$50,000 to \$79,999), and high income (\$80,000 or more).

Results

Hypothesis 1 was tested with one-way ANOVA, with Scheffé tests to examine whether there were differences in the three kinds of perceived channel utilities between Web buyers and non-Web buyers, and between frequent Web buyers and occasional Web buyers. The results are presented in Table 3.

Utility Factors	Non Buyer	Occasional Buyer	Frequent Buyer	F	d.f.	p
Communication	3.99 ^c	4.20 ^b	4.26 ^a	11.39	2, 976	.001
Distribution	2.51 ^c	2.82 ^b	2.94 ^a	17.80	2, 970	.001
Accessibility	3.73 ^c	3.97 ^b	4.09 ^a	19.65	2, 975	.001

(1 = very weak, 5 = very strong)

Note: Means with different superscripts indicate a significant difference.

Table 3. Perceived Channel Utilities by Online Buying Behavior

The data fully support Hypothesis 1. A consistent pattern was found: frequent Web buyers perceived the Web to be significantly higher in the three kinds of channel utilities than occasional Web buyers, who in turn were significantly higher in their perception of these channel utilities than non Web buyers. It is noticeable that the scores for perceived distribution utility of the Web were lower than 3.0 for all three types of online buying behavior, indicating that this utility was less than desirable even for frequent Web buyers. Implications of this finding are discussed in the summary section.

Hypothesis 2 states that subjective knowledge about which Web sites are the best places for specific product purchases is higher for frequent Web buyers than for occasional Web buyers, who in turn, are higher than non-Web buyers. This hypothesis was supported by the one-way ANOVA result (see Table 4).

	Non Buyer	Occasional Buyer	Frequent Buyer	F	d.f.	p
Channel Knowledge	3.27 ^c	3.77 ^b	4.16 ^a	110.76	2, 972	.001

(1 = very little, 5 = very much)

Note: Means with different superscripts indicate a significant difference.

Table 4. Channel Knowledge by Online Buying Behavior

It is quite reasonable to expect that an individual's subjective channel knowledge and his or her perception of channel utilities may mutually influence each other, and that such mutual influences flow in a reciprocal fashion. Therefore, a symmetrical correlation analysis was done to examine the association between subjective channel knowledge and three kinds of perceived channel utilities.

The correlation was .190 for the communication utility, .193 for distribution utility, and .191 for accessibility. These consistent correlation coefficients are all significant ($p < .01$) although their magnitude was not dramatic.

Hypotheses 3 to 6 pertain to the differences in shopping orientations between three types of online buying behavior. Simply speaking, they assume that frequent Web buyers will be higher in the convenience orientation but lower in the experiential orientations than occasional Web buyers, who further will be higher in the convenience orientation but lower in the experiential orientation than non-Web buyers. No differences were assumed in the recreational orientation and the economy orientation between three types of online buying behavior. The results are in Table 5.

Orientations	Non Buyers	Occasional Buyer	Frequent Buyer	F	d.f.	p
Recreational	3.48	3.40	3.30	2.85	2, 976	n.s.
Convenience	4.10 ^b	4.19 ^b	4.33 ^a	9.97	2, 977	.001
Experiential	4.24 ^a	4.01 ^b	3.62 ^c	57.18	2, 976	.001
Economic	4.43	4.42	4.38	1.04	2, 976	n.s.

Note: Means with different superscripts indicate a significant difference.
(1 = strongly disagree, 5 = strongly agree)

Table 5. Shopping Orientations by Online Buying Behavior

The hypotheses were supported except for the assumed difference in convenience orientation between occasional Web buyers and non-Web buyers. That is, the occasional Web buyers and non-Web buyers were not significantly different on their concerns for shopping convenience. In addition, a noticeable pattern exists among non-Web buyers, occasional Web buyers, and frequent Web buyers in that they valued convenience in shopping more highly as their Web shopping frequency increased. Likewise, a similar yet reverse pattern was observed with regards to the experiential orientation. In other words, individuals who valued experiential shopping highly were less likely to shop on the Web. Conceptually, the experiential orientation focuses on interacting with products, whereas the recreational orientation usually refers to the interaction with situational factors and shopping behavior itself as a diversion from the routine life.

Hypotheses 7, 8, 9 and 10 addressed the demographic differences among the three types of online buying behavior. The results in Table 6 indicate that men were more frequent Web buyers than women, although the gender difference is not sharp between non-Web buyers and Web buyers in general. Educational difference was a significant demographic variable, with a larger portion of better-educated consumers in the frequent Web buyer category. A similar pattern is shown for income; consumers with higher incomes were more likely to be in the frequent online buyer class. As hypothesized, age was not significant.

Ten hypotheses were tested, of which eight were fully supported and two partially supported. However, it is not easy for these individual hypotheses to provide a complete picture of how these variables are combined to affect a consumer's online buying behavior. Thus, multiple, stepwise regression analyses were conducted to delineate the impact of these variables. In the regression analysis, these variables were grouped into three layers: demographics; shopping orientations; and channel knowledge and perceived channel utilities. It was assumed that the impact of shopping orientations on online buying behavior will be stronger than demographics, and that the impact of channel knowledge and perceived utilities will be stronger than shopping orientations. Variables in each layer were added in a sequential order to reveal changes in the R and R² of each model. The results are in Table 7.

As the results indicate, four demographics accounted for only 4 percent of the variance in the online buying behavior. The percentage increased to 16 percent with the inclusion of four shopping orientations, to 27 percent with the addition of channel knowledge, and finally to 29 percent after adding three kinds of perceived channel utilities. This could be considered a moderately strong model for online buying behavior. In the final model, however, only six variables are significant predictors: education, convenience and experiential shopping orientations, channel knowledge, channel distribution utility, and channel accessibility. These factors were quite robust given the magnitude of their effects.

Demographics	Non Buyer	Occasional Buyer	Frequent Buyer	χ^2	d.f.	
Female	31%	36%	33%	9.18	2	.0
Male	24	33	43%			
Under 21	35%	28%	37%	17.48	10	n.
21 – 29	26	36	38			
30 – 39	22	39	39			
40 – 49	27	27	46			
50 – 65	23	43	34			
Over 65	24	35	41			
Less than HS	40%	31%	29%			
HS Graduate	41	27	32			
Some College	26	36	38			
College Graduate	19	41	40			
Some GS	21	39	39			
Graduate Degree	18	24	59			
Less than \$29,999	30%	35%	35	25.73	6	.0
\$30,000 - \$49,999	27	39	34			
\$50,000- \$79,999	24	35	41			
\$80,000 or more	23	20	57			

Table 6. Demographics by Online Buying Behavior

	Beta	t	P	Model Statistics
Model 1				
Gender	.076	2.340	.019	R = .207
Age	.003	.097	n.s.	R ² = .043
Education	.160	4.639	.001	F = 10.29
Income	.071	2.151	.032	d.f. = 4, 920
				P = .001
Model 2				
Gender	.089	2.901	.000	R = .396
Age	-.002	-.050	.004	R ² = .156
Education	.125	3.827	n.s.	F = 21.24
Income	.002	.690	.001	d.f. = 9, 915
Recreational	.051	1.539	n.s.	p = .001
Convenience	.158	4.960	.124	
Experiential	-.331	-9.836	.001	
Economic	.025	.723	n.s.	
Model 3				
Gender	.029	.991	n.s.	R = .519
Age	.026	.851	n.s.	R ² = .269
Education	.097	3.201	.001	F = 27.49
Income	-.007	-.251	n.s.	d.f. = 9, 915
Recreational	.026	.855	n.s.	p = .001
Convenience	.100	3.314	.001	
Experiential	-.243	-7.540	.001	
Economic	-.027	-.843	n.s.	
Channel Knowledge	.362	11.894	.001	
Final Model				
Gender	.035	1.211	n.s.	R = .538
Age	.017	.568	n.s.	R ² = .289
Education	.112	3.693	.001	F = 30.95
Income	-.002	-.062	n.s.	d.f. = 12, 912
Recreational	.019	.617	n.s.	p = .001
Convenience	.075	2.468	.014	
Experiential	-.229	-7.150	.001	
Economic	-.046	-1.412	n.s.	
Channel Knowledge	3.29	10.707	.001	
Communication	0.13	.365	n.s.	
Distribution	.079	2.593	.010	
Accessibility	.099	2.837	.005	

Table 7. Coefficients of Multiple Regressions

Summary and Discussion

In this paper we attempt to identify the factors that predict a consumer's online buying behavior, using primary data from an online survey of national Internet users. The data are compared with other similar national surveys such as Greenfield Online (1999). Both surveys have similar percentages of the past-three-month online buyers (73 percent for the present survey and 74 percent for Greenfield Online's 1999 survey). Greenfield Online found that about 54 percent of online buyers bought at least three times; the present survey, conducted six months earlier, yielded 47 percent. These consistencies confirm to some degree the external validity of both surveys. It is worth noting that online surveys usually show consistent higher percentages of online buyers and usage of the Internet than telephone surveys, largely because online survey participants are more likely to be active Internet users. Research is needed to compare online surveys and conventional telephone or mail surveys to find systematic similarities and differences.

This study proposes ten hypotheses, seven of which are diagramed in the conceptual model in Figure 1. Three hypotheses posit no difference in recreation orientation, price orientation, and age between non-online buyers, occasional online buyers, and frequent online buyers. They are not depicted in Figure 1. Eight hypotheses were fully supported and two hypotheses were partially supported in individual tests. Specifically, for Hypothesis 3, an assumed difference in convenience orientation is not significant between occasional Web buyers and non-Web buyers although its direction is in line with the hypothesis. For Hypothesis 8, the gender

difference is not substantial between non-Web buyers and Web buyers in general although men are more frequent Web buyers than women.

A parsimonious treatment is conducted altogether on the ten hypotheses with step-wised multiple regression analyses (see Table 7). The result indicates that six variables (education, convenience orientation, experiential orientation, channel knowledge, perceived distribution utility, and perceived accessibility) are robust predictors of the online buying status of a U.S. consumer (non, occasional, and frequent).

Findings of the influence of shopping orientations on online buying behavior have several implications. Frequent and occasional Web buyers are indeed not more price-sensitive than non-Web buyers. This finding seems consistent with the conclusion of a recent McKinsey & Co. study. Although the idea of using shopping robots for price comparison across Web sites is intriguing, no really efficient robots presently are available. Online price comparison is still somewhat time-consuming and may not be worth much given the small differences in price between different vendors. On the other hand, smart online retailers will attempt to differentiate their products or services, making direct price-comparisons less meaningful.

A more prominent issue is the experiential aspect of online shopping and buying. As these findings suggest, there is a negative relationship between the experiential orientation and the frequency of online purchases. It is clear that current "search-oriented" online stores have a number of limitations compared to the conventional store. First, the way product information is presented by online stores is likely to reduce the impact of brand equity. As Burke noted, the computer typically displays a list of brand names and model numbers with information on features, flavors, sizes, and prices. Consumers do not see the familiar product packages, so the traditional brand equity communicated by the package shapes, colors and logos is lost. Second, most online shopping interfaces allow consumers to go directly to specific product categories and make their selections, "avoiding the marketing distractions of the conventional store." (p.354) In this environment, shoppers may make fewer impulse purchases and trial purchases of new brands. Third, online shoppers are not able to gain the experience they usually get in the conventional store, e.g., feeling the store's atmosphere, interacting with a salesperson, and seeking sensory stimulation. Given this reality, Burke (1997) asserted that the Internet will have the greatest impact on marketing communication, a moderate effect on the sales transaction, and a minimal impact on logistics with the exception of information goods. This situation may hinder the future penetration of electronic commerce because many transactions do require some kind of pre-purchase inspection.

As more consumers turn to electronic commerce, online retailers are striving for a perfect shopping environment. Takahashi reviewed the recent advances in this direction, including use of surround video, 3-D images, and VR technology in online stores. These applications were among the most visited features of some online stores, reflecting the shoppers' strong interest. These "experience-oriented" features are likely to be the main characteristics of the second generation of online stores, giving consumers a shopping experience while taking full advantage of rich information, easy access and convenience of the Internet. Online stores with features that simulate the consumer's familiar shopping experience are likely to represent the future of online consumer marketing.

Channel knowledge is the strongest predictor in our model of online buying behavior. Knowledgeable consumers tend to have more positive perceptions of the online channel's utilities. As the Internet grows, the consumer's knowledge of the online channel will steadily increase. It is not clear, however, just what kind of an innovation diffusion curve will be followed by Internet shopping (Rogers, 1995). This issue demands further research.

Like any research, the present study has certain weaknesses. First, some multi-item scales seem to be less reliable than was expected. Although the study adopts several items measuring shopping orientation from previous studies on the same subject, the reliability coefficients are not as high as those of the previous studies. The question arises as to whether a new set of shopping orientations should be developed for the online consumer. The set of measures for perceived channel utilities developed for this study is built upon existing theory about marketing channels. The channel utility scales may need to be re-phrased for measuring features such as information customization and degree of interactivity, which are not typical for catalogs and retail stores but are for the Web. Lastly, the model presented here accounts for only one-third of the total variance of online buying behavior. More variables need to be identified and specified in future research for a better understanding of this increasingly important behavior of consumers in electronic commerce.

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