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Internet: A Vehicle for On-Line Shopping

ABSTRACT

Explosive growth in the computer usage and the Internet technology has been a boon to marketers. The Internet coupled with Web page provides opportunities to marketers to target potential customers both in the domestic and global markets. This study was designed primarily to determine whether the individual responding to the survey used the Internet for shopping online. Information provided by 151 households during October-November 1997 showed that out of 124, 71 percent had access to the Internet. Discriminant analysis related to the Internet usage identified sex, age, ethnicity, and annual household income as important variables in determining access to the Internet. Answers provided by 86 individuals showed that only 5 or 6 percent shopped online and spent on the average $20. The two variables identified as important following the discriminant analysis related to online shopping were occupation and annual household income. This suggests that marketers should develop and implement online marketing strategies to those that are "time poor" and have above average annual household income.

INTRODUCTION

Traditionally, marketers used various mass media – direct mail, telephone, television, radio, magazines, newspapers, and other means like package inserts for communicating with the target group of customers and market products. Developments in electronic communication during the past three decades have opened up opportunities to communicate with the potential customers and market products using the fax and the Internet. The Internet, a fast growing medium is an information infrastructure connecting 1000s of computers using 1000s of paths.

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It is a loosely configured web of corporate, educational, and research computer global networks. The Department of Defense started the Internet as a research and development communications network in 1969. [1]

The growth of Internet since its beginning in 1969 has been sporadic and it is difficult to predict where and when the next link will be added. Measured in terms of the host computers, the use of Internet is growing at an annual rate of 70%. According to statistical data for 1996, the global growth in the Internet domain is as follows: (1) Sri Lanka – 5,717%; (2) China – 820%; (3) Indonesia – 308%; (4) Brazil – 284%; (5) Russian Federation – 250%; (6) Egypt and Japan – 173% each; (7) The U.S. – 151%; (8) Mexico – 110%; and (9) Italy – 104%. [2] A recent study identified three phases in the Internet growth. The U.S. is in the 3rd phase of growth, Australia in the 2nd phase, and Asia is still in the 1st phase. [3] Although it is difficult to precisely estimate the number of Internet users, several forecasts indicate variations ranging from 117 million worldwide users to 300 million by the year 2000. However, as of May 1998, a total of 119.5 million users were online globally. The breakdown of those online for various regions were as follows: (1) Canada and the U.S.– 70 million; (2) Europe – 23.5 million; (3) Asia/Pacific – 17.25 million; (4) South America – 7 million; (5) Africa – 1 million; and (6) Middle East – 0.75 million. [4]

Marketers must use the Internet in conjunction with the World Wide Web (www) or Web to communicate with the target group of customers. The Web sites provide an opportunity to advertise products and are gaining prominence as commercial medium for the past two to three years. Those using the Internet as a marketing tool must provide product information, price, and other information typically sought by potential customers buying products online. Since the Internet users for shopping accept the use of Web as a commercial medium, pressures are mounting on firms advertising products and publishers of Web page to get results. It is important to recognize that creating a Web site needs constant updating "content," which is expensive. The Web site can be used by the firms to accomplish the following: (1) it can be used as an information source to build customer relationship whenever large amounts of information is needed to make informed decisions; (2) it may serve as a medium for communication between the businesses and the potential customer; and (3) it may act as an entertainment venue to both the marketers who advertise and publishers. Some publishers like "Yahoo," use their brand name, which is popular, to attract large number of visitors. In addition to visitors, which is an indication of exposure of products offered and information provided by the firm, one should also focus on the revenue generated. It is important, therefore, that the Web publishers focus on skills as creator of "content" before licensing sites with high traffic. Accomplishing this objective may call for increasing separation of roles between Web publishers and Web "content" developer.

Banners should be bought only on those sites that can generate direct sales leads. The Internet users often "surf" the Internet looking for information, which interests them, and not necessarily shop for products. To access information of interest, the surfers use search engines and key words or phrases. The information search is accomplished by going through subject, guide, location, or content. As a result, marketers using the Internet, as an online shopping vehicle must provide links or banners on the Web page to facilitate access to relevant information with the click of a mouse. Any one who can entice potential customers to visit the firm's Web page can control to a certain extent where the customer may go next and the information one may access. Hyperlinks leading to information source favorable about the firm's products can attract the potential customer towards its products ultimately leading to purchase decision. The risks associated with the hyperlink are that it may take the potential customer to a location from which one may never return.

Firms using the Internet as a communication and marketing tool must have a thorough knowledge of their target customers if they are to anticipate the direction in which the search for products and/or information may take place. The objective should be that the individual who is surfing the Internet encounter listing leading to the firm's Web page. It is important to make sure that the information provided in the form of advertisements creates awareness, interest, and favorable attitude toward the products offered by the firm. The information provided should be relevant and helpful in making purchase decision and simultaneously reduce perceived risk.

Use of the Internet and Web page adds value to the marketer's offering by facilitating he flow of information between the firm and the potential buyer, and may lead to a long-term commitment to between the two parties. During 1997, the General Electric Company's business with its suppliers exceeded one billion dollars through the Web-based System. Another Silicon Valley company, CISCO Systems, also used Web site to generate in excess of a billion dollars in sales. The Dell Computer Company, a pioneer in direct marketing of computers, generates a sale of over a million-dollar a day through its Web site. It is important to note that currently only 3% of business-to-business sales are accomplished through the Web sites. [5] Increasing use of the Internet as a marketing tool has resulted in mergers and acquisitions of the Internet service providers and telephone companies with the explicit purpose of cutting costs and easing access. During 1997, there were six mergers between the Internet service providers and telephone companies. These mergers may result in cheaper Internet access and convenience for the end users.

REVIEW OF RELATED LITERATURE

The Internet as a marketing tool is growing in importance globally since one can conduct business transactions across the national boundaries without actually being there. What all one has to do is to have access to the Internet and a Web site that can entice potential customers seek needed information about the product one wants to buy. If this should be accomplished, the marketers must be aware of the products typically bought by the potential customers, amount spent on products purchased, frequency of purchase, demographic and socioeconomic profile of those buying online, and so on. The Web, the fastest growing Internet phenomenon, is doubling in growth every 4 to 6 months. Since it is easier to use the Web, it is gaining in importance among firms marketing products to potential customers. The Internet users similar to the TV audience are diverse with regard to geographic, demographic, and socioeconomic characteristics and go online from seeking information about dating to a new software package. The growing online audience as a target market offers great market potential.

Those wanting to use the Internet for shopping must own or have access to computers and subscribe to services offered by the Internet Service Providers. Available data indicate that in 1996, the number of personal computers per 100 persons in the U.S. was approximately 33 and Internet hosts per 1000 population was about 35.The highest number of personal computers per 100 inhabitants was in Switzerland and the lowest in Italy with 35 and 8, respectively. The Internet hosts per 1000 population in the two countries were 23 and 3. [7] In emerging markets ownership of personal computers and the use of Internet is growing at a phenomenal rate. Fore example, along with the growth in ownership of personal computers, the Internet market in India is projected increase from 40,000 in 1997 to about two million by the year 2000. The Internet Service Providers aiming at the Indian market represent AT&T, CompuServe, and Microsoft. [8] In the People's Republic of China, during March 1998, a total of 620,000 were surfing the Internet and the number of Internet users is projected to reach seven million by the year 2001. Currently, about 3,000 computers are able to access the Internet and this number is expected to reach 700,000 by the end of 1998. [9]

Several studies have been conducted to identify the demographic, socioeconomic, and geographic characteristics of those online both in the U.S. and abroad. A survey conducted by Harris and Baruch College showed that the percent of Whites, Afro-Americans, and Hispanics online represented 30 percent, 27 percent, and 26 percent of the U.S. population, respectively. In 1995, 77 percent of those online were male, while in 1998 men represented 54 percent and women 46 percent. Young adults still dominate the group using Internet, but the gap is narrowing down. Among the American youth, 49 percent between the ages of 18 and 24 were online and 37 percent of those online represented 25 to 29 age groups. The older Americans online

represented the following breakdown: (1) 50–64 years of age – 21%; (2) 60 years/over – 6%; and 65 years/over – 8%. Only 14 percent of those living in the rural areas were on line. [10]

Another study conducted by Tomas Riveria Institute indicated narrowing gap between the number of Hispanics on line and the rest of the U.S. population. A survey of 1,627 Hispanics showed that 30 percent of the Hispanics owned computers compared to 43 percent among the general population, although 34 percent of the Hispanics have never used a computer. A recent Vanderbilt University study showed that 73 percent of the white Americans have used World Wide Web compared to 32 percent among Afro-Americans. However, Afro-American households spent $74 million on hardware and software during 1997. [11]

The Nielsen Media Research and Commerce Net study compares 16 years and over adult Americans using the Internet. According to its September 1997 estimates about 52 million used the Internet and nine months later the number of users accounted for 70.2 million resulting in an increase of the Internet users by 18.2 million. The largest increase was among Afro-Americans and American Indians. There was also an increase in the Internet usage by American youth and women over 50 years of age through June 1998. The results showed that 44 million Americans, about twice as many men than women, used Web to compare products or make purchases. According to the report 5.6 million Afro-Americans used the Internet, an increase by 53 percent over a nine-month period. A total of 868,000 American Indians were online during the same time period, an increase by 70 percent. It also showed that gains in the Internet usage among people in the 16 to 24 age group by 46 percent, and a 50 percent increase in the number of women using the Internet.[12]

Looking at the global picture, an analysis of 1,064 responses to a survey conducted between November 1997 and January 1998 showed the following demographic, socioeconomic, and geographic profile of the typical AltaVista user: (1) the user belonged to 20 to 29 age group; (2) college educated; (3) typically employed in a large Information Technology related firm; (4) single in a relatively small household; (5) had high disposable income; and (6) had invested in a house, car, and financial markets. The majority accessed the Internet from home and spent at the minimum one hour online each day. The most popular destinations were search engines seeking information about online products and services. The number of women on line represented 22%. The results of the survey showed that 67 percent of those online were from South East Asia, 6 percent from the Pacific region, and 27 percent from other parts of Asia. The most popular products purchased were: (1) adult entertainment – 17%; (2) wine – 15%; (3) business services – 14%; (4) Decorations – 13%; and (5) clothing – 10%. [13]

Determining how many are on the Internet varies depending upon how one defines "Internet use." Europe's leading consultants and developers estimate the global Internet use by over 100 million people. This number is projected to double by the year 2000. Total number of

users in the U.S. range between 40 and 47 million. [14] The emerging 20 nations in Asia, Eastern Europe, and Latin America (Argentina, Brazil, Chile, China, Columbia, Greece, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russian Federation, Saudi Arabia, Thailand, Turkey, Venezuela, and Vietnam) offer great opportunity in the Internet frontier. Next to these countries, Sub-Sahara Africa seems to open up great marketing opportunity.[15]

Based on visitors who are 12 and over in age, the top five Web sites for December 1997 were: Yahoo/Four 11; (2) Netscape; (3) Excite/Web crawler; (4) Microsoft; and (5) America Online(AOL.com). Since August 1997, the overall Web usage accounted for 24 percent. The recognition of Web as a "mass medium" may be attributed to increased use by business, increases in the use of computers at home, and growing importance of Web site advertising within the traditional means of communication. In terms of revenue generated, Web advertising reached one billion dollars during 1996 and is projected to reach five billion dollars by the year 2000. With regard to ranking among the mass media, Web ranked number 8, Network TV still holding number 1 position.[16] A study commissioned by the Direct Marketing Association indicated that returns on Internet advertisement spending has almost doubled since 1994. "Every dollar spent on Internet advertising in 1997 generated $7 in sales, compared to $4 in 1994." The following five industry leaders use Internet in direct marketing for generating sales: (1) Business Services; (2) Computers; (3) Communications; (4) Office Equipment; and (5) Printing/Publishing.[17]

Successful online marketing strategy involves knowledge about shopping pattern, products purchased, and amount spent on the purchases. Information available from the America Online indicates that 40 percent of online shopping takes place between the hours of 10 PM and 10 AM, when the stores are closed. [18] Online shoppers mostly search for bargains on the Internet. A survey conducted by Ernst and Young showed that the products sold on the Internet were priced about 73 percent lower compared to the traditional retailers. Saving derived by online shopping for the following product categories was: (1) Compact Discs (music) – 18%; (2) Books – 24%; Software – 9%; (4) Electronics – 12%; (5) Sporting goods/toys – 13%; (6) Tools – 12%; and (7) Other products – 27%. [19]

According to Piper Jaffray, during the first half of 1998 the amount of retail sales online represented 22 percent of the total. If the current trend in growth continues, online retail trade is projected to account for over 27 percent of the total sales in 1998, an increase by 17 percent compared to 1997 figures. The top 10-brokerage houses had an increase in online account by 21 percent, and Charles Schwab topped the list with 29 percent. [20] A moderate rate of growth is expected in the percent of Internet users buying on the Web, an increase from 26 percent in December 1997 to 40 percent by December 2002. The amount of money spent on online shopping is estimated to reach $400 billion by the year 2002.[21]

The surge of the online shoppers has forced many marketers to move away from the traditional storefront approach. During February 1998, the Egghead Inc. surprised the retail world closing 40 stores and going online and telemarketing with the new name "Egghead.com Inc." The company sells its products exclusively on line and to telephone order. The online shopping has become popular among the automobile dealers as well. For example, Edmund Publications Corporation of Beverly Hills, California provides information about new – and used car guides on the Web with product reviews, prices, and car owners' comments. Others, like Autobytel.com Inc., online car buyer system provides information about the nearby dealerships for the car the customer wants to buy. [22]

PROBLEM STATEMENT AND OBJECTIVES

The explosive growth in the use of the Internet and Web has opened up both domestic and global opportunities to the marketers. Those wanting to capitalize on the increasing use of the Internet for online shopping must have a thorough knowledge of potential customers and the online purchase behavior. This study was, therefore, designed primarily to determine whether the respondents used Internet for online shopping. The specific objectives were, however, to determine: (1) the demographic and socioeconomic profile of the respondents; (2) whether they had access to computer either at home or in the workplace; (3) whether they had access to the internet and usage pattern; and (4) whether they were aware that the Internet could be used for shopping, and used it for shopping.

RESEARCH PROCEDURE

Data related to the objectives of the study were collected using a two-page questionnaire. The questions used were brief and specific, and pertained to demographic and socioeconomic characteristics of the respondents; whether they had computer at home; if not, whether they had access to computer in the workplace; how often they used computer; whether they had access to Internet and used it; how often they used Internet; whether they were aware that Internet could be used for shopping; did they use Internet for shopping, and how much they spent on Internet shopping. A survey of 151 households located in Bakersfield and suburbs was conducted during October-November 1997, using random digital dialing telephone interviewing method. Following the completion of the survey, data were coded, computerized and analyzed.

To determine the demographic and socioeconomic profile, computer and Internet usage pattern, frequency of Internet usage, and amount spent online shopping frequency analysis

was used. To identify the demographic and socioeconomic characteristics of Internet users and online shoppers, simple linear discriminant analysis model was used. Response to the questions whether the individual had access to and used Internet, accessed company's Web page seeking information about the company and products, and used Internet for online shopping classified into "Yes" or "No" was used as criterion or dependent variable. The 12 demographic and socioeconomic variables included in the questionnaire were used as predictor or independent variables. The discriminant model used was as follows:

$$Z = b1\,x\,1 + b2\,x\,2 + \ldots + b12\,x\,12$$

Where:

Z = Discriminant score;

b1…b12 = Discriminant weights/coefficients, independent variables with high discriminant power will have coefficients that are larger in magnitude; and

x1…x12 = Predictor variables

The ranking of coefficients is based on the *absolute size* or magnitude, and normally variables with coefficients of ≥0.30 in magnitude are considered as important.

Data related to criterion variable and 12 demographic and socioeconomic variables: sex of the respondent; marital status; respondents' and spouses' age, education, occupation and ethnicity; number of children at home; and annual household income, were analyzed using stepwise approach. This method begins the discriminant analysis by choosing the single best discriminating variable. The second variable included in the analysis improves the discriminating power of the function in along with the first variable. The process continues until either all the independent variables have been included in the analysis or those judged not to contribute significantly to further the discrimination are excluded.

The analysis also provides information in a classification table about how many individuals responding to the questions are either correctly or incorrectly classified. While it is true that the discriminant function provides a method to minimize the probability of misclassification, one has to pose the question regarding whether it has been reduced to a sufficient extent to make it a tool for prediction purposes. Morrison points out that "the statistical significance per se of the D^2 or transformed F statistic means very little …(it) is a very poor indicator of the efficacy with which the independent variables can discriminate between group 1 individuals and those in group 2." [23] The proportion of cases correctly classified should be compared with the proportional chance criterion, which is:

$$C_{proportional} = P^2 + (1-P)^2$$

Where:

P = Proportion of cases belonging to one group; and

(1–P) = Proportion of cases belonging to the other group

If the actual percent of correct classification is greater than the Cproportional, the discriminant function has classification power. By plugging in the values for demographic and socioeconomic variables in the dsicriminant function one can estimate Z scores. In situations involving two classifications, the hit ratio is determined by computing a single "cutting" score. Respondents whose Z scores are below this score are assigned to one group, and those with scores above are assigned to the second.

FINDINGS

DEMOGRAPHIC AND SOCIOECONOMIC PROFILE OF RESPONDENTS

Analysis of answers provided by the respondents to questions on 12 demographic and socioeconomic characteristics resulted in the following breakdown. The letter "n" shown in parenthesis represents number of individuals responding to the question

1. *Respondents' sex* (n=151): (a) Male – 65/43%; and (b) Female – 86/57%
2. *Martial status* (n=151): (a) Married – 73/48%; (b) Single – 61/41%; (c) widowed, Separated, divorced, etc. – 17/11%
3. *Respondents' age* (n=145): (a) 25 years/less – 34/23%; (b) 26–45 Years – 72/50%; (c) 46–90 years – 39/27%. The average age with a standard error of 1.43 was 18.5 years. The median and modal ages were 37 and 26 years, respectively. Respondents' ranged in age between 18 and 90 years.
4. *Spouses' age* (n=71): (a) 33 years/less – 33/46%; (b) 40–78 years – 38/54%. The average age with a standard error of 1.92 was 41.4 years. The median and modal ages were 40 and 31. Spouses' age ranged between 20 and 78
5. *Respondents' education* (n=151): (a) Some HS/HS grad. – 65/43%; (b) Some college/College grad. – 77/51%; (c) Professional degree/Other – 9/6%
6. *Spouses' education* (n= 132): (a) Some HS/HS grad. – 30/23%; (b) Some college/College grad. – 36/27%; (c) Professional degree – 44/33%; (d) Other – 22/17%
7. *Respondents' occupation* (n=150): (a) White collar – 22/15%; (b) Blue collar – 50/33%; (c) Retirees, students, housewives – 45/30%; (d) Other – 33/22%

8. *Spouses' occupation* (n=135): (a) White collar – 13/10%; (b) Blue collar – 30/22%; Retirees, students, housewives – 20/15%; (d) Other – 72/53%
9. *Number of children at home* (n=80): (a) 1 child – 27/34%; (b) 2 children – 33/41%; (c) 3/more children – 20/25%
10. *Respondents' ethnicity* (n=150): (a) White – 92/61%; (2) Hispanic – 32/22%; (c) Asian and other – 26/17%
11. *Spouses' ethnicity* (n=133): (a) White – 77/58%; (2) Hispanic – 42/32%; (c) Asian and other – 14/10%
12. *Annual household income* (n=99): (a) $15,000/less – 12/12%; (b) $16,800 – $35,000 – 39/39%; (c) $37,000 – $200,000 – 48/49%. The average annual household income with a standard error of 34.3 was $43,974. The median and modal incomes were $35,000 and $30,000, respectively. The annual household income ranged between $10,000 and $200,000.

The information presented above show that the majority of respondents were women, married, had one child or two children, the respondent belonged to 26 to 45 age groups, and the spouse was in the 40 and above age category. The majority of respondents had some high school and college education, held white- and blue-collar jobs, and the ethnicity was White and Hispanic. The majority of households had an annual household income of $37,000 and above.

ACCESS TO COMPUTER AND USAGE

Online shopping is possible only when one has access to a computer either at home or in the workplace. To determine whether the respondent had access to computer and usage pattern, appropriate questions were asked. Analysis of the responses provided showed the following distribution.

1. *Do you have a computer at home?* (n=151): (a) Yes – 60/40%; (b) No – 91/60%
2. *If no, do you have access to a computer?* (n=91): (a) Yes – 50/55%; (b) No – 41/45%
3. *Where do you have access?* (n=50): (a) Office – 29/58%; (b) University, college, etc. – 21/42%
4. *How often do you use computer?* (n=109): (a) Very often – 44/40%; (b) Often – 15/14%; (c) Occasionally – 28/26%; (d) Seldom – 12/11%; (e) Never – 10/9%

Results of the analysis show that about 40 percent of the respondents owned computer, which compares with the computer ownership in the U.S. households at the present time. Those

that did not own computer, 55% had access to computer in the workplace or in the University/College. The majority used computer "Very often" and "Often."

ACCESS TO INTERNET AND USAGE

It is feasible to do online shopping only when one has access to Internet either at home or place of work. As a result, two questions were asked: (1) Do you have access to Internet? and (2) Do you use Internet? Response to the question, whether the individual had access to Internet was given by 124. Of the 124, 69 or 56% said, "Yes," and the rest, 55 or 44% stated "No." When asked about using Internet, 103 answered. Of those answering, 50 or 49% mentioned that they use Internet, while the remaining 53 or 51% did not use Internet.

To identify important demographic and socioeconomic characteristics of the respondents, discriminant analysis was used. Results of the analysis and the classification matrix are presented in Table 1 through table 4.

Results presented in Table 1 show that of the 12 demographic and socioeconomic variables used in the analysis only five – martial status of the respondent, spouses' age, number of children at home, respondents' age and education, in that order, were identified as important. The estimated Chi-square value of 11.92 with 5 degrees of freedom and a significance level of 0.04 shows that significant discriminating power exists in the variables included in the analysis. Direct marketers wanting to target the households with Internet access may consider these five variables for market segmentation purposes.

TABLE 1. Standardized Canonical Discriminant Function Coefficients: Whether the Respondent had Access to Internet

DISCRIMINATING VARIABLE	COEFFICIENT	RANK
1. MARTIAL STATUS	–0.7438	1
2. SPOUSES' EDUCATION	0.6999	2
3. NUMBER OF CHILDREN AT HOME	0.4032	3
4. RESPONDENTS' EDUCATION	0.3753	4
5. RESPONDENTS' AGE	0.3091	5

FUNCTIONS DERIVED	CHI-SQUARE	D.F.	SIGNIFICANCE
1	11.92	5	0.04

TABLE 2. Classification Matrix: Predictive Validity Related to Those Having Access to Internet

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP	
		GROUP 1 – YES	GROUP 2 – NO
GROUP 1 – YES	69	41 OR 71.0%	20 OR 29.0%
GROUP 2 – NO	55	25 OR 45.5%	30 OR 54.5%

GROUP MEMBERS CORRECTLY CLASSIFIED: 63.71%

$C_{proportional} = (69/124)^2 + (55/124)^2 = 0.3096 + 0.1967 = 50.63\%$

Classification matrix presented in Table 2 shows how many of those having access to Internet are correctly classified. Information presented in Table 2 shows that about 64 percent of respondents are correctly classified. Specifically, 71 percent of those who can access Internet and 54.5 percent of those who cannot access are correctly classified. The estimated Cproportional is approximately 51 percent. The actual classification, 63.71 percent which is higher than Cproportional shows that the discriminant function has predictive power.

Information provided in Table 3 reveal that of the 12 demographic and socioeconomic variables included in the discriminant analysis, only six were highly significant with a Chi-square value of 23.61 with 6 degrees of freedom. These variables, in the rank order are – spouses' ethnicity, annual household income, respondents' ethnicity and age, spouses' ethnic-

TABLE 3. Standardized Canonical Discriminant Function Coefficients: Whether the Respondent Uses Internet

DISCRIMINATING VARIABLE	COEFFICIENT	RANK
1. SPOUSES' ETHNICITY	0.6888	1
2. ANNUAL HOUSEHOLD INCOME	0.6496	2
3. RESPONDENTS' ETHNICITY	–0.5362	3
4. RESPONDENTS' AGE	–0.5184	4
5. SPOUSES' AGE	0.4766	5
6. RESPONDENTS' SEX	–0.3900	6

FUNCTIONS DERIVED	CHI-SQUARE	D.F.	SIGNIFICANCE
1	23.61	6	0.00

TABLE 4. Classification Matrix: Predictive Validity Related to Internet Users

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP	
		GROUP 1 – YES	GROUP 2 – NO
GROUP 1 – YES	50	38 OR 76.0%	12 OR 24.0%
GROUP 2 – NO	53	20 OR 37.7%	33 OR 62.3%

GROUP MEMBERS CORRECTLY CLASSIFIED: 68.93

$$C_{proportional} = (50/103)^2 + (53/103)^2 = 0.2356 + 0.2648 = 50.04$$

ity, and respondents' sex. Direct marketers wanting to target Internet users should focus on these variables for developing and implementing successful online marketing strategy.

Results presented in Table show that about 69 percent of Internet users are correctly classified. The Cproportional is 50.04. Specifically, 76 percent of the users and 62.3 percent of non-users in the sample are correctly classified. Actual percent correctly classified, 68.93 which is higher than Cproprotional indicates that the discriminant function has classification power.

WHETHER ACCESSED COMPANY'S WEB PAGE OR SITE AND USED INTERNET FOR SHOPPING

Those using Internet for online shopping may access the company's Web page of the direct marketer to seek information about the products, and even may like to take a look at the product on the monitor. Therefore, two questions, one pertaining to whether the respondent accessed the company's Web and shopped online was asked. Those answering whether they accessed Web accounted for 72. Of this number, 25 or 35 percent has accessed Web, while the remaining 47 or 65 percent had not. The question on shopping online was answered by 86. Of the 86, only 5 stated that they had shopped online and the remaining 81 had not. Of the 5 shopping online, 2 spent $10 each, 2 spent $20 each, and 1 spent $40. They purchased music CDs and books. Responses to these questions, "Yes" or "No," were used in the discriminant analysis to identify important demographic and socioeconomic characteristics of those responding to the survey. Results of the analysis are presented in Tables 5 through 8.

Information provided in Table 5 shows that the discriminant analysis identified as important only five of the 12 demographic and socioeconomic variables of the respondents. These variables, in the rank order are – spouses' education, respondents' age, annual household income, spouses' age and ethnicity. The estimated Chi-square of 10.38 with 5 degrees of free-

TABLE 5. Standard Canonical Discriminant Function Coefficients: Whether the Respondent Accessed Company's Web page or site

DISCRIMINATING VARIABLE	COEFFICIENT	RANK
1. SPOUSES' EDUCATION	1.0620	1
2. RESPONDENTS' AGE	– 0.8041	2
3. ANNUAL HOUSEHOLD INCOME	0.7343	3
4. SPOUSES' AGE	0.7248	4
5. SPOUSES' ETHNICITY	–0.5601	5

FUNCTIONS DERIVED	CHI-SQUARE	D.F.	SIGNIFICANCE
1	10.38	5	0.06

dom was significant at 0.06 level. Direct marketers wanting to provide information to the potential online shoppers through the Web page may look at these variables as important in market segmentation and targeting strategies.

The classification matrix shown in Table 6 indicates that about 65 percent of the respondents accessing Web page site are correctly classified. The Cproportional is 54.67. It is important to recognize that 68 percent of those accessing company's Web page and 63.8 percent not accessing Web in the sample are correctly classified. The actual percent correctly classified, 65.28, which is greater than Cproportional shows that the discriminant function has classification power.

Results shown in Table 7 indicate that only two of the 12 demographic and socioeconomic variables included in the discriminant analysis are important. The two variables, in the

TABLE 6. Classification Matrix: Whether the Respondent Accessed Company's Web page or site

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP	
		GROUP 1 – YES	GROUP 2 – NO
GROUP 1 – YES	25	17 OR 68.0%	8 OR 32.0%
GROUP 2 – NO	47	17 OR 36.2%	30 OR 63.8%

GROUP MEMBERS CORRECTLY CLASSIFIED: 65.28%

$C_{proportional} = (25/72)^2 + (47/72)^2 = 0.1206 + 0.4261 = 54.67$

TABLE 7. Standard Canonical Discriminant Function Coefficients: Whether the Respondent Shopped Online

DISCRIMINATING VARIABLE	COEFFICIENT	RANK
1. ANNUAL HOUSEHOLD INCOME	0.7639	1
2. RESPONDENTS' OCCUPATION	–0.5024	2

FUNCTIONS DERIVED	CHI-SQUARE	D.F.	SIGNIFICANCE
1	7.17	2	0.02

TABLE 8. Classification Matrix: Whether the Respondent used Internet for online shopping

ACTUAL GROUP	NUMBER OF CASES	PREDICTED GROUP MEMBERSHIP	
		GROUP 1 – YES	GROUP 2 – NO
GROUP 1 – YES	5	5 OR 100.0%	0 OR 0.0%
GROUP 2 – NO	81	25 OR 30.9%	56 OR 69.1%

GROUP MEMBERS CORRECTLY CLASSIFIED: 70.93

$C_{proportional} = (5/86)^2 + (81/86)^2 = 0.0038 + 0.8871 = 89.09$

rank order are – annual household income and respondents' occupation. It is reasonable to assume that those that are "time poor" may use Internet for online shopping. Direct marketers wanting to provide information to potential customers shopping online may look at the occupation and income as important variables for market segmentation and targeting strategies.

Information presented in Table 8, the classification matrix, shows that about 71 percent of those shopping online using Internet are correctly classified. The Cproportion is 89.09. It is important to note that 100 percent of those shopping online and 69.1 percent not shopping online in the sample are correctly classified. The actual percent classified, 70.93 being smaller than Cproportional, the classification power of the disriminant function is questionable.

SUMMARY AND CONLUSION

The explosive growth in computer usage and availability of Web page or site to provide potential customers seeking knowledge about the company and its products, have all opened up

opportunities to both marketers and those buying online. In addition, online shopping has also helped firms wanting to expand geographically to get into markets beyond the national boundaries. Thus, the Internet has enabled firms to accesses both domestic and global markets. If an individual wants to shop online, the prerequisite is that one should either own a computer or have access to one. Given that the individual has access to a computer, online shopping can be done only when one has access to Internet supported by Web site. The online shopping popularly known as "Electronic Commerce" or E-Commerce is gaining worldwide acceptance. This study was, therefor, designed primarily to determine how one can use Internet as a marketing tool. To accomplish this, 151 households were surveyed during October-November 1997, in Bakersfield and suburbs using random digital dialing method of telephone interviewing. The questions included in the two-page questionnaire were related to computer ownership and access, usage pattern, access to Internet and usage pattern, whether the individual accessed company's Web page seeking information about the company and its products. Data were analyzed using frequency and discriminant analysis. Results of the analysis showed that 40 percent of the respondents owned computers, and 58 percent of those not owning a computer had access to one. Of the 124 answering the question on access to the Internet, 56 percent said they could. Of the 103 responding to the question on the Internet usage, 48 percent stated that they had used. With regard to access to a company's Web site, 72 individuals provided information. Those accessing Web seeking product and company information represented 35 percent. Answer to the question on using the Internet for shopping was given by 86. Of the 86, only 5 stated that they shopped online.These individuals spent on the average $20 and bought music CDs and books. Occupation and annual household incomes were the two important variables with regard to those shopping online. Firms wanting to develop and implement successful market segmentation and targeting strategies may carefully consider variables that are important in using the Internet and online shopping. ■

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