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Can Personality Be Used to Predict How We Use the Internet?

By [Bonnie Lida](#)

At a time when consumers are becoming much more sophisticated and demanding higher levels of product information before making purchase decisions, traditional retail outlets are under pressure to reduce overhead to enhance profitability resulting in declining retail sales personnel (Hill, King, & Cohen, 1996). This scenario, coupled with increasing time constraints of American consumers and increased computer familiarity to more than half of the U.S. population connected to the Internet, has led to the use of the Internet as an alternative to traditional methods for information gathering and shopping. In fact, a U.S. Department of Commerce survey found that of the 54% of the population using the Internet, 55.8 million bought goods or services online (Grant, 2002). This growth in online retailing raises many questions about how businesses can successfully market on the Internet.

One key difference between online and traditional consumers is that consumers in the computer-mediated environment (CME) have control in all stages of their purchase decision-making process. Traditionally, marketers have distributed their messages to consumers via a mass communication medium, such as television, radio, and newspaper, where the consumer plays no active role other than channel delivery choice. To insure their messages reached the target audience, marketers segmented consumers into homogeneous groups based principally on demographic information.

However, a study cited at the Wharton Forum on Electronic Commerce revealed that demographics alone do not seem to influence whether or not people buy online, or the amount of money they spend there. Instead, comfort level online and time constraints have proven to be better predictors of online purchasing (Bellman, Lohse & Johnson, 1999).

Another divergence from traditional mediums is the ability of the Internet to develop relationships with individuals through an interactive environment. Web designers can customize an online retail site to the individual consumer's preference by collecting historic usage information. This requires online marketers to shift from the conventional paradigm of marketer control to one of marketer/consumer collaboration (Hoffman & Novak, 1996). As a result, it is now necessary for the contemporary marketer to understand more about the personal characteristics and motivations of the consumer rather than simply age, gender, and income.

Investigating the current empirical approaches to personality provides insight into consumer traits and behaviors when attempting to predict online behavior. Since increased personal control over outcomes has been cited as one of the major differences consumers experience in a CME, use of the locus of control construct seems especially relevant when analyzing online behaviors (Hoffman, Novak, & Schlosser, 2000).

Locus of control (LOC), a personality dimension based on principles from social learning theory is a generalized expectancy about the degree to which individuals control their outcomes (Rotter, 1966). At one end of the continuum are those who believe their actions and abilities determine their successes or

failures (Internals); whereas, those who believe fate, luck, chance, or powerful others determine their outcomes are at the opposite end (Externals).

In general, an Internal LOC orientation is associated with purposive decision making, confidence to succeed at valued tasks, and the likelihood of actively pursuing risky and innovative tasks to reach a goal (Lefcourt, 1982; Hollenbeck et al., 1989; Howell & Avoilio, 1993). Externals, on the other hand, are generally less likely to plan ahead and to be well informed in the area of personal financial management tasks and more likely to avoid difficult situations and exhibit avoidant behaviors such as procrastination, withdrawal, or escape (Dessart & Kuylen, 1986; Aspinwall & Taylor, 1992; Skinner, 1996; Ingledew et al., 1997).

Rotter (1992) considers that any analysis of tasks and events that lead individuals to control an event by perceived skill (internally) or by chance (externally) is a valuable area of LOC study. This would seem to be the case in the study of consumer behavior, as well as computer-based activities. Busseri, Lefcourt, and Kerton (1998) developed a measure of LOC focused specifically on consumer behaviors and outcomes (CLOC). This study explores the relationship between CLOC and Internet behavior. It was hypothesized that:

- Internal LOC consumers will use the Internet to make retail purchases more often than External LOC consumers.
- Internal LOC consumers will believe the Internet is convenient, saves money, and saves time more than external LOC consumers.
- Internal LOC consumers will use the Internet more frequently for goal-oriented tasks, such as price comparisons, search for specific product information, access financial information, than External LOC consumers.

METHOD

Participants/Materials

Five hundred thirty-two volunteers from undergraduate and graduate level business or psychology courses at Wichita State University participated in the study. Data was collected from students via a paper survey in their classroom setting. The survey instrument included three sections. The CLOC Scale developed by Busseri, Lefcourt, and Kerton (1998) was used to assess participants' LOC levels and consisted of 14, 5-point, continuous-scale questions. The second section contained 20, 5-point continuous scale questions dealing with frequencies and attitudes toward Internet usage, shopping and purchase behaviors. The final portion of the survey queried demographic information including the extent the participant has the role of 'shopper' in the household, age, race, gender, household size and income, and educational level.

RESULTS

The CLOC test was scored using a median split to divide the total pool of participants into two groups (Busseri et al., 1998; Rotter, 1975). Analysis found the median score on the CLOC scale to be 31.00. Of the 532 participants, 3 were not analyzed due to missing data. Of the remaining 529 cases, 248 (47%) were categorized with an Internal orientation (CLOC < 31.00) and 281 (53%) with an External orientation (CLOC > 31.00).

Demographic Profile

The mean age of the sample was 24 years. Seventy-one percent were Caucasian, 5% African-American, 4.8% Hispanic, 13.5% Asian/Pacific Islander, 1.5% Native American, and 4.3% Other. The respondents were 44% male and 56% female. Fifty-six percent had an annual gross household income under \$40,000; 32% between \$40,000 to \$100,000; and 10% over \$100,000. Approximately 65% of those surveyed are responsible for at least half of their household purchases. Nearly 86% of those households were four or fewer persons. The results show that 96% of the respondents have used the Internet for over one year.

Comparison of Internal and External CLOC

A one-way analysis of variance (ANOVA) was used to compare the dependent variables across CLOC groups. Table 1 shows a summary of the means and standard deviations.

Table 1. Mean (SD) Responses by CLOC group

	Internals	Externals	Significance
Length of Internet usage ¹	3.85 (.75)	3.62 (.79)	F(1,523) = 11.74, p = .001
Purchase online ³	3.99 (.96)	4.31 (.76)	F(1,526) = 18.61, p < .001
Dislike shopping on Internet ²	2.64 (1.32)	3.10 (1.28)	F(1,525) = 16.97, p < .001
Convenient ²	3.84 (.91)	3.51 (.91)	F(1,527) = 18.16, p < .001
Saves money ²	3.41 (2.21)	2.99 (.78)	F(1,526) = 8.70, p < .01
Saves time ²	3.65 (1.06)	3.45 (.94)	F(1,527) = 5.32, p < .05
Use it to compare prices ³	3.12 (1.17)	3.64 (1.13)	F(1,526) = 26.37, p < .001
Use it to search for product info ³	2.36 (1.13)	2.70 (1.22)	F(1,526) = 11.24, p < .01
Use it to access financial info ³	2.94 (1.50)	3.43 (1.45)	F(1,526) = 14.22, p < .001

1 1 = Less than 6 months to 5 = Over 7 years

2 1 = Strongly disagree to 5 = Strongly agree

3 1 = Daily to 5 = Never

Length of Internet Usage: Significant differences between Internal and External LOC consumers were found in the length of time participants have been using the Internet.

Online Retail Purchase Behavior: Significant differences between Internal and External CLOC were found in online retail purchase behavior. Internals reported more frequent purchasing online than Externals and that they disliked shopping on the Internet less than Externals.

Online shopping attitudes: Significant differences were also found between Internal and External groups in attitudes that Internals reported higher beliefs that Internet shopping was convenient, saves money and time more than Externals.

Online task behaviors: Significant differences were revealed for goal-oriented tasks between Internals and Externals. Internal consumers used the Internet more often to compare prices, search for specific product information, and access financial information.

The two groups were not found to differ significantly from each other on the following: uses the Internet for information only; uses the Internet for e-mail communication; is comfortable shopping in stores; buys online for special occasions; only buys certain items online; buys products through online auctions; and buys online when can't find it elsewhere.

Discriminant Function Analysis

To determine if Internals and Externals could be predicted by their online behaviors, a direct Discriminant Function Analysis (DFA) was performed using the 19 Internet attitude and usage variables as predictors of membership in the CLOC groups (Tabachnick & Fidell, 1996).

Of the original 532 cases, 11 were not analyzed due to missing data. Missing data appeared to be randomly scattered throughout the groups and predictors. A DFA was performed on the remaining 521 cases; 245 classified with an Internal CLOC orientation and 276 with an External CLOC orientation. One canonical function was used, and produced an eigenvalue of .117. A Wilks' Lambda of .895 was

produced, indicating that there was substantial discrimination between the two groups, Internal and External Consumer Locus of Control.

DISCUSSION

Results of this study provide an alternative view of online consumer behavior, which reveals differing Locus of Control between customers of online sites. These findings present an opportunity to further examine what these differences represent in terms of perceived and actual usability of online retail sites. As more businesses go online, it will be increasingly critical that they have a clear understanding of the online consumer. This will include not only what their customer's demographics are, but also their personality characteristics.

As shown in the results of the discriminant analysis summary, the online purchaser has an internal LOC orientation both in attitudes toward Internet usage and frequency of usage. Coovert and Goldstein (1980) found that Internals had more favorable attitudes toward computers than Externals did, which is consistent with this study's findings of Internals earlier computer adoption and usage in goal-directed activities.

In addition, it was found that the Internals were more goal-directed in their online activities, in that they compared prices, researched and purchased products, and accessed financial information. However, Externals still reported using the Internet experimentally, e.g. as a communications tool/e-mail and having fun/exploring. This has implications for web designers who may want to attract Externals to their site.

Locus of Control Internet Attitudes

Internals were more likely to report that the Internet was convenient, and saved them time and money than Externals. In the CME, the shopping situation is in the consumer's control. Therefore, when the online shopping experience is approached as a goal-directed activity, the perception may translate into a convenient, time- and money-saving experience. For the consumer with an External LOC, the opportunities for shopping to be an experiential or recreational activity are reduced since most retail websites are geared toward providing a more 'goal-directed' type of experience.

Future Research

As previously suggested, the results of this study serve as a foundation toward scientifically testing the usability of website designs and preferences that vary based on the consumer's LOC. Other personality assessment measures should also be considered in further studies. Since it is much easier for the online consumer to "click" out of the virtual store than to leave the shopping mall, the pressure is on e-tailers to better understand their online customers.

REFERENCES

Aspinwall, L. G., & Taylor, S. E. (1992). Modeling cognitive adaptation: A longitudinal investigation of the impact of individual differences and coping on college adjustment and performance. *Journal of Personality and Social Psychology*, 63, 989-1003.

Bellman, S., Lohse, G. L., & Johnson, E. J. (1999). Predictors of online buying behavior. *Communications of the ACM*, 42, 32-38.

Busseri, M. A., Lefcourt, H. M., & Kerton, R. R. (1998). Locus of control for consumer outcomes: Predicting consumer behavior. *Journal of Applied Social Psychology*, 28, 1067-1087.

Coovert, M. D., & Goldstein, M. (1980). Locus of control as a predictor of users' attitude toward computers. *Psychological Reports*, 47, 1167-1173.

Dessart, W. C. A. M., & Kuylen, A. A. A. (1986). The nature, extent, causes and consequences of problematic debt situations. *Journal of Consumer Policy*, 9, 311-334.

Grant, E. X. (2002). Report: The state of U. S. online shopping. *E-Commerce Times* [On-line]. Available: <http://www.ecommercetimes.com/perl/story/16233.html>

Hill, D. J., King, M. F., & Cohen, E. (1996). The perceived utility of information presented via electronic decision aids: A consumer perspective. *Journal of Consumer Policy*, 19, 137-166.

Hoffman, D. L., & Novak, T. P. (1996). A new marketing paradigm for electronic commerce. *The Information Society, Special Issue on Electronic Commerce*, 13, (Jan-Mar), 43-54.

Hoffman, D. L., Novak, T. P., & Schlosser, A. (2000). Consumer control in online environments. Unpublished manuscript, eLab, Owen Graduate School of Management, Vanderbilt University : Nashville , TN.

Hollenbeck, J. R., Williams, C. R., & Klein, H. R. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology*, 74, 18-23.

Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance. *Journal of Applied Psychology*, 2, 891-902.

Ingledew, D. K., Hardy, L., & Cooper, C. L. (1997). Do resources bolster coping and does coping buffer stress? An organizational study with longitudinal aspect and control for negative affectivity. *Journal of Occupational Health Psychology*, 2, 118-133.

Lefcourt, H. M. (1982). *Locus of control: Current trends in theory and research*. Hillsdale, NJ: Lawrence Erlbaum.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement, *Psychological Monographs*, 80, 1-28.

Rotter, J. B. (1992). Some comments on the "Cognates of personal control". *Applied & Preventive Psychology*, 1, 127-129.

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, 71, 549-570.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins.

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