Gender Differences in Online Shopping Behavior

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Abstract

Since the emergence of Internet service, the revenue from e-commerce has been exponentially growing. Especially, the consumption by men in online retailers is distinctively different from that in traditional bricks-and-mortar retailers. Facing these interesting phenomena, researchers as well as businesses have begun to pay attention to e-commerce and online consumers. However, research on consumer behaviors in the online channel has not made a careful investigation into gender behavioral differences in the online channel. Therefore, we provide a profound understanding of gender differences in online shopping behavior compared to those in offline shopping behaviors. Through our findings from this research, we draw researchers' attention to consumer behavior in the online channel, gender differences in online shopping. Also, we suggest practical implications to online marketers using data collected from one of the major online retailers.

Keywords:

Gender, Shopping Behavior, Online channel, Clickstream analysis

Introduction

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According to a report from Forrester Research (2004), the growing population of online shopping households, combined with effective multi-channel integration and site improvements from retailers, will drive e-commerce growth to account for 12% of retail sales, estimated at $316 billion, in 2010, up nearly 7 percent from 2004. In addition to the rapid growth of e-commerce, some reports have announced a significant level of consumption by men in online retailers. The reports said the average male spends more money shopping online per month than the average female — $204 to $186, while women occupy more than 70% of consumption in traditional brick-and-mortar stores (Forrester Research, 2004). Although numerous studies in e-commerce have used gender as one of the demographic variables in their studies (Korgaonkar et al., 1999) and examined gender differences in attitudes toward online shopping, did they rarely consider gender differences in shopping behaviors Those studies on gender behavioral differences online have only focus on online channel usage behavior, such as the Internet or electronic mails (Allen, 2001; Kehoe et al., 1998). Different from prior studies, this paper expands the understanding of gender differences in online shopping by observing actual behaviors through clickstream data analysis. Based on the results, we give practical implications to marketers and inspire research on gender behavioral differences in the online channel.

Literature Review

Previous research has shown some characteristics of the online channel, which, in turn, influence user behaviors on the channel. Studies have argued that consumers' perceptual responses to the online and offline channels are different. Therefore, we first present the distinctions of the online channels. Regarding to the characteristics of the online channel, we compare gender differences in the attitudes toward online shopping. Lastly, we see gender differences in shopping behaviors in the offline channel. Then we generate hypotheses based on these previous studies.

In the online shopping context, consumers have been found to evaluate their shopping experiences in terms of perceived risk, provided services, and entertainment (Burke, 2002; Parasuraman et al., 2002). First, online trust is one of the issues researchers as well as practitioners frequently associate with the success or failure of online ventures (Efthymios, 2004). According to Harris Interactive (2001) about 70 percent of the US Web users are seriously concerned about the safety of their personal information, transaction security and misuse of private consumer data, showing how the anonymity of the Internet produces consumers' anxiety about online shopping. Thus, multi-channel firms with well-established reputation, brands or products usually have a serious advantage to make it easier for customers of physical firms to trust them online with high levels of brand awareness and good

reputation (Efthymios, 2004; Hoffman, 1997). In addition to consumers' anxiety about security, physical distance and lack of personal contact in the online context generate high risk perceptions of the products or services offered, deterring consumers to directly contact with products and salespersons. The lack of interaction generated from lack of personal contacts also reduces shopping entertainment, not fulfilling enjoyment from the shopping experience and the desire for interaction. On the other hand, the online channel potentially becomes a "truly" competitive market by providing consumers not only with extensive information to make informed decisions (Devaraj et al., 2002) but also with enjoyment through interactive marketing tools. Web retailers also have responded to the request for customer control and convenience by providing various site features like search engines or recommender systems, at the same time eliminating time and geographical barriers as well.

Hypotheses

Few studies on gender differences in the online context have paid attention to online shopping. They suggest that women are less likely to buy online (Allen, 2001; Bartel-Sheehan, 1999), while males are said to spend more money and make more frequent purchases than females on the Internet (Li et al., 1999). They have shown that women consider shopping as more of a social activity than do men, so the solitary feature of online shopping is less favorable than traditional brick-and-mortar shopping (Simon, 2001). Similarly, Miller (1998) argues that the convenience associated with online shopping is attractive for men, but that, since online shopping cannot replicate the multidimensional shopping experience of traditional shops, it is likely to have limited appeal for women. Campbell (2000) has shown that women have a highly positive attitude toward buying and associate it with a leisure frame whereas men have a negative attitude toward buying and see it as work that they want to accomplish with minimum input of time and effort. That is, men tend to focus on the outcome of obtaining the actual goods with the least fuss as they are motivated by functional factors while women tend to focus on the process of buying motivated by emotional and social factors (Dittmar, 2004). Similarly, Underhill (1999) found that says women spend more time at a store than men do by recording consumers' actual moves in traditional retailers.

Based on the previous studies examining gender differences in information search during shopping, we generate hypotheses of gender differences in overall search behaviors in the online channel, involving the level of information they searched to see whether the depth of information search is different according to gender.

H1. In the offline channel, males moves fast, and spends less time. Similarly, males will show more direct purchase behaviors than females during online shopping.

H1a. Males will visit fewer pages than females during online shopping.

H1b. Males will view fewer kinds of categories than females during online shopping.

H1c. Males will view fewer kinds of products than females during online shopping.

As mentioned above, online users perceive higher risks than they do in the offline. However, previous research has proved that consumers seek information sources as a means of reducing purchasing uncertainty depending on self-confidence, anxiety, and specific-confidence. In the online context, females are said not only to be more risk averse but also perceive higher risk online than males (Byrnes et al., 1999). In this perspective, we assume that females will be more likely to look for additional information from others through feedbacks about products or services at online stores.

H2. In the offline channel, females tend to hear others' opinion during shopping. Similarly, males will be less likely to respond to feedbacks on products than females during online shopping.

One type of decision aids available online is recommendations, which assists consumers in screening the alternatives that are available in an online store (Haubl et al., 2000). With the recommendations that automatically offer available products based on the criteria provided by the shopper, consumers can reduce the amount of superfluous information to be processed (Moorthy, 1997), consequently requiring low effort for purchase decisions (Todd et al,, 1994) and improve decision quality with high accuracy (Singh et al., 1996). Another type of decision aid available online is search engines, which allow users to enter a term or a phrase in order to specify their query and initiate their search (Jennifer, 2006). According to a previous research, men frequently depicted shopping trips as an arduous and distasteful task, best carried out as quickly and efficiently as possible. Therefore, we expect males will be more likely to use these two types of decision aids during online shopping to reduce time and efforts as well as to make their shopping process more efficient than females.

H3. In the offline channel, males tend to find what they are looking for by themselves. Similarly, males will be less likely to use search engines than females during online shopping.

H4. In the offline channel, males were more apt to seek the assistance of store sales personnel than females (Laroche et al., 2000). Similarly, males will be less likely to respond to recommended products than females during online shopping.

While a considerable number of studies have focused on consumers' responses to price promotions at brick-and-mortar retailers, few have investigated in the online environment. More available information and easier price comparison in the online channel have made consumers more price- sensitive, so online marketers adopted various price promotions to attract those consumers. Regarding price promotions, some research has found that the demand effects of a promotion accelerate purchase and brand switching (Gupta, 1988). Therefore, we expect consumers' price-oriented behaviors through coupons, loyalty programs, and price discounts would have a positive relationship with consumer decision making online. Researchers have argued that an element of fun needs to be present in the online context, indicating that shopping

enjoyment can be an important determinant of online customer loyalty (Jarvenpaa et al., 1997) with the concept of flow (Hoffman, Novak, 1996; Csikszentimihalyi, 1988). Prior research has shown the effect of certain site features, such as the availability of an FAQ section or promotions at the web store entrance on the traffic and overall sales of online stores (Lohse et al., 1998a and b). Therefore, we assume consumers' experiential behaviors through interactive website features that fulfill consumers' needs of interaction and enjoyment would have a positive relationship with consumer decision making online. Based on previous studies, we include sweepstakes as one of promotions available online in the hypotheses. Previous studies have found females are more likely to bargain hunt. Underhill (1999) also mentions that men move faster, look less and are less likely to ask a question or look at the price tag in his book. Therefore, we expect that females are more likely to respond to promotions, such as coupons, loyalty programs, price discounts, and sweepstakes, than males online.

H5. In the offline channel, males are less sensitive to promotions. Therefore, males will be less likely to respond to promotions than females during online shopping.

H5a. Males will be less likely to respond to coupons than females during online shopping.

H5b. Males will be less likely to respond to loyalty programs than females during online shopping.

H5c. Males will be less likely to respond to price discounts than females during online shopping.

H5d. Males will be less likely to respond to sweepstakes than females during online shopping.

Methodology

In the offline environment, studies on consumer behavior usually investigate consumer behavior through direct observation or experiment. On the other hand, clickstream data analysis is commonly appointed as the way to observe consumer behavior online (Bucklin, 2002). To understand the way to analyze online consumer behavior and choose feasible variables from web log data, we should understand clickstream data first.

When a consumer visits an online retailer, every page requested by a click of a mouse is recorded in the web log as a separate record (Theusinger et al., 2000). As a consumer visits several pages in the web, the separate records construct a "path" sometimes called "clickstream" in the form of a log file. This clickstream includes information about ID, requested page, time, software connected through, and private information such as email address and name, as in the example. The user's ID is first followed by information on the page requested and the time. Then the information on previously visited web pate is repeated. Finally, the information on what browser the visitor is using, a consumer's name and email address are shown. As mentioned, raw data is recorded in order of time and includes the same information repeatedly, leading to a poor result. Therefore, we underwent preprocessing to eliminate useless information before analyzing the data. We parsed the web log to a common log format for each visitor, and then cleansed by deleting the repeated information. For statistical analysis, we counted the page views of each variable using visual basic 7.0. Although web log data describes online consumer behavior, it does not contain demographic information. The private information such as ID, name, age, purchase history, and name are recorded in a customer database. After preprocessing the clickstream data of each ID, we matched the data with the customer demographic file using Microsoft Access 2005. We connected a table that adds the page views of variables of each ID to the demographic file. Then, we created a query that shows consumer behavior as well as demographic information together.

Statistical techniques are the most common methods for extracting knowledge on visitors to a website (Srivastava, 2000). Researchers in online consumer behavior have analyzed duration, page view, visit frequency, inter-visit time and navigation pattern to examine consumer shopping behavior. For example, Fuller et al. (1996) used duration - an index represents the level of interest of a consumer for a specific web page - to measure consumer visit behavior. Although some researchers have measured duration and page view at the same time (Bucklin et al., 2000). Joo et al. (2001) have argued that duration is often misestimated because of slow loading time or consumer's leaving without logging out a web site. Also, measuring both duration and page views incurs multicollinearity. We only measure the page view of each variable since one of the solutions for solving the multicollinearity is elimination of variables that cause the multicollinearity most. In this research, we estimate the relationships of variables with purchases to find significant online consumer behaviors, and then compare gender differences in those behaviors. As logistic regression is the recommended data analytic tool when the dependent measure is binary, and the independent measure is qualitative or quantitative (Ball et al, 1982), we use Independent-Samples T-Test in SPSS 13.0 to measure critical variables that are related to consumer decision making.

Data and Results

377,797 consumers visited the online retailer where our data was collected from July 1, to July 31, 2006. The visitors consist of 39.1% males and 60.9% females. Among male visitors, only 9.32% completed purchases while 14.40% of female visitors realized purchases. Consequently, about 12% of all visitors actually make purchases at the point of their visit. In terms of age, we can see most visitors ranged from their 20s to 40s. Firstly, we choose only the first session of visitors to avoid data redundancy, assuming that consumers would show similar behaviors when they visit several times a day. According to our purpose of research, seeing consumer behaviors when purchasing online, we choose only purchasers among the samples remaining only the first session. Among visitors of the online retailer for July, 2006, the size of samples chosen is 606.

Table 1. Results of t-test for Information Search Behaviors

	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Pageviews	2.327	604	.020	18.324	7.873
Highest level of category	-.150	604	.881	-.012	.080
Middle level of category	-.091	604	.928	-.015	.162
Lowest level of category	-.412	604	.680	-.158	.384
Products	4.452	604	.000	5.853	1.315

There is more detail information about the samples below. As assumed females visited more pages than males during shopping online (T = 2.327, P=.020<.05). Therefore, we cannot reject the first hypotheses H1a. Considering the depth of information search, we can see that males visited similar number of categories at three different category levels, the highest level (T=-.150, P=.888>.05), the middle level (T=-.091, P=.924), the lowest level (T=-.412, P=.680>.05). However, males visited less number of products than females (T=4.452, P=-.00<.05) (Table 1).

Table 2. Results of t-test for Decision Aids Use

	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Feedbacks	4.430	604	.000	.207	.047
Search Engines	1.244	604	.214	.056	.045
Recommendations	.381	604	.704	.011	.029

Among decision aids, there were no gender differences in the usage of search engines (T=1.244, P=.214>.05) and recommendations (T=.381, P=.704>.05). On the other hand, females were found to be more likely to inquire feedbacks than males (T=4.430, P=.000<.05). Consequently, we cannot reject only the hypothesis 2 (Table 2).

Table 3. Results of t-test for Promotion Use

	t-test for Equality of Means				
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Coupons	.372	604	.710	.017	.046
Loyalty Programs	-1.035	604	.301	-.033	.032
Price Discounts	5.558	604	.000	.249	.045
Sweepstakes	1.678	604	.094	.075	.045

Regarding to consumers' responses to promotions online, we assumed that females are more likely to respond to promotions more than males. We, however, found only responses to price discounts are significantly different between males and females (T=5.558, P=.000<.05). There is no gender differences in responses to coupons (T=.372, P=.710>.05), loyalty programs (T=-1.035, P=.301>.05), and sweepstakes (T=1.678, P=.095>.05). As assumed, females generally visit more pages and view various products. When looking for information, females also inquire feedbacks more than males. However, there are no gender differences in information search diversity at higher levels, search engine or recommendation use. Among promotions online, females are more likely to respond to price discounts while males are similarly likely to respond to other promotions online, such as coupons, loyalty programs, or sweepstakes, totally differently from they do in traditional bricks-and-mortar retailers.

Discussion

We have discovered how males and females behave in the online channels differently from their behaviors in the traditional bricks-and-mortar retailers. While females also show much hedonic behaviors online, males are found to behave quite similarly in the online channel, especially they respond to promotions just as females do online except for price discount. Considering distinctive characteristics of the online channel, such as anonymity or lack of interaction, males are assumed to respond to price promotions with lower lever of social consciousness online compared to that offline. Even though previous research suggests that males are to save time and make their shopping processes efficiently, they use decision aids, such as search engines or recommendations less than expected. This might imply that the decision aids do not satisfy males' need enough.

Significance

Previous research rarely examined gender differences in shopping behaviors especially those in the online channel. In this research, however, has observed gender differences in online shopping behaviors and compared the online shopping behaviors of each gender with those in the traditional bricks-and-mortar retailers. Based on the results, we have proved consumers behave differently in different shopping channels, implying distinctive characteristics of channels influence on consumer behaviors. This may expand researchers' interests in consumer behaviors in different shopping channels as well as in gender behavioral differences. In addition, practitioners or marketers in online businesses can improve their marketing strategies, in turn consumer relationships, by understanding consumer behavioral differences caused by the characteristics of the online shopping channel and gender.

Limitations

Although this research is meaningful in some perspectives – expanding issues related to consumer behaviors online and gender behavioral differences and observing actual behaviors based on clickstream data from a major online

shopping store, this is limited to generalize the results since the data only collected from one online store. Moreover, we do not exactly understand the reasons why males and females show different behaviors and why consumers differently behave online. Therefore, we can extend our search to examining consumer attitudinal responses to a particular characteristic of the online channel and the process how the factor influence consumer responses based on previous studies on user response to online channel and gender differences.

References

[1] Allen D. (2001). "Women on the Web," 2001, available at:
http://www.emarketer.com/analysis/ecommerce_b2c/20010228_b2c.html.

[2] Ball C. A., Tschoegl A. E. (1982). "The Decision to Establish a Foreign bank Branch or Subsidiary: An Application of Binary Classification Procedures," The Journal of Financial and Quantitative Analysis, Vol 7, pp.411-424.

[3] Bartel-Sheehan K. (1999). "An Investigation of Gender differences in On-line Privacy Concerns and Resultant Behaviors," Journal of Interact Marketing, Vol. 13, pp.24.

[4] Bell D. R., Bucklin R. E., Sismeiro C. (2000). "Consumer Shopping Behaviors and In-Store Expenditure Decisions," aagsm.ucla.edu, available at:
http://www.anderson.ucla.edu/documents/areas/fac/marketing/bbs.pdf.

[5] Brynes J.P., Miller D.C., Schafer W.D. (1999). "Gender Differences in Risk Taking: a Metaanalysis," Psychol Bull, Vol.125, pp.367-383.

[6] Burke R. R. (2002). "Technology and the Customer Interface: What Consumers Want in the Physical and Virtual Store," Journal of the Academy of Marketing Science, Vol.30, pp.411-432.

[7] Campbell C. (2000). "Shopaholics, Spendaholics, and the Question of Gender," In A. Benson(Ed.), I Shop, Therefore I Am: Compulsive Buying and the Search for Self, New York: Aronson, pp.57-75.

[8] Csikszentimihalyi I. S. (1988). "Optimal Experience: Psychological Studies of Flow in Consciousness," Cambridge university Press, Cambridge, U.K.

[9] Devaraj S., Fan M., Kohli R. (2002). "Antecedents of B2C Channel Satisfaction and Preference: Validating e-Commerce Metrics," Information Systems Research, Vol.13, pp.316-333.

[10] Dittmar H., Long K., Meek R. (2004). "Buying on the Internet: Gender Differences in On-line and Conventional Buying Motivations," Sex Roles, Vol. 50, pp.423-444.

[11] Efthymios C. (2004). "Influencing the Online Consumer's Behavior: the Web Experience," Internet Research, Vol.14, pp.111-126.

[12] Forrester Research (2004). "Forrester Research Projects US Online Retail Sales to Top $300 By 2010", Available at: http://www.crm2day.com/news/crm/EpAFukZuAZbKPWsVZp.php.

[13] Fuller R., Graaff J. J. (1996). "easuring User Motivation from Server Log Files,"In Proc. of .

[14] Gupta S. (1988). "Impact of Sales Promotions on When, What, and How much to Buy," Journal of Marketing Research, Vol.25, pp.342-355.

[15] Harris Interactive (2001). "Privacy Leadership Initiative," available at: www.ftc.gov/bcp/workshops/glb/supporting/harris%20results.pdf.

[16] Haubl G and Trifts V. (2000). "Consumer decision making in online shopping environments: the effects of interactive decision aids," Marketing Science, Vol.19, pp.4-21.

[17] Hoffman D. L., T. P. Novak T. P. (1996). Marketing in Hypermedia computer-mediated environments: Conceptual foundations, Journal of Marketing, Vol.60, pp.50-68.

[18] Hoffman D. L., Novak T. P. (1997). A New Marketing Paradigm for Electronic Commerce, The Information Society, Vol.13, pp.43-54.

[19] Jarvenpaa S. L., Todd P. A. (1997). " Consumer Reactions to Electronic Shopping on the World Wide Web", International Journal of Electronic Commerce, Vol.1, pp.59-88.

[20] Jennifer R. (2006). "Window Shopping and Browsing Opportunities in Cyberspace," Journal of Consumer Behaviour, Vol.1, pp.369-378.

[21] Joo Y., Han S. (1986). "Profitable Customer's Visit Behavior in Community Web Site - Comparing Business Models – ," Marketing Research, 2001, 16(2), pp.69-91.

[22] Kehoe C., Pitkow J., Morton K. (1998). "Eighth WWW User Survey," available at: http://www.cc.gatech.edu/gvu/user_surveys/survey-1998.

[23] Korgaonkar P. K., Wolin L. D. (1999). "A Multivariate Analysis of Web Usage", Journal of Advertising Research, Vol.39, pp.53-88.

[24] Laroche M., Saad G., Cleveland M., Browne E. (2000). "Gender Differences in Information Search Strategies for a Christmas Gift," Journal of Consumer Marketing, Vol.17, pp. 500-522.

[25] Li, H., Kuo, C., Russell, M. G. (1999). "The Impact of Perceived Channel Utilities, Shopping Orientations, and Demographics on the Consumer's Online Buying Behavior," Journal of Computer-Mediated Communication, Vol.5, available at: http://jcmc.indiana.edu/vol5/issue2/hairong.html.

[26] Lohse G. L., Peter S. (1998a). "Quantifying the effect of user interface design features on cyberstore traffic and sales," CHI, Los Angeles, CA, pp.211-218.

[27] Lohse G. L. (1998b), "Electronic shopping: Quantifying the effect of customer interfaces on traffic and sales," Comm. ACM, Vol.41, pp.81-86.

[28] Miller, D. A (1998). "Theory of Shopping," Polity Press, Cambridge.

[29] Moorthy S., Ratchford B.T., Talukdar D. (1997). "Consumer Information Search Revisited: Theory and

Empirical Analysis, Journal of Consumer Research, Vol. 23, pp.263-277.
[30] Parasuraman A., George M. Z. (2002). "Marketing to and Serving Customers through the Internet: An Overview and Research Agenda," Journal of the Academy of Marketing Science, Vol.30, pp.286-295.
[31] Peter and Izak Benbasat (1994). "The Influence of Decision Aids on Choice Strategies: An Experimental Analysis of the Role of Cognitive Effort," Organizational Behavior and Human Decision Processes, Vol. 60, pp.36-74.
[32] Simon S. J. (2001). "The Impact of Culture and Gender on Web Sites: An Empirical Study," The DATA BASE for Advances in Information Systems, Vol. 32, pp.18-37.
[33] Singh D. T., Ginzberg M. J. (1996). " An Empirical Investigation of the Impact of Process Monitoring on Computer-Mediated Decision-Making Performance," Organizational Behavior and Human Decision Processes, Vol. 67, pp.156-169.
[34] Srivastava J., Cooley, R. Deshpande M., Tan P. (2000). "Web Usage Mining: Discovery and Application of Todd, Usage Patterns from Web Data," SIGKDD Explorations, Vol.1:2.
[35] Underhill P. (1999). Why We Buy: The Science of Shopping, London: Orion Books.
[36] Theusinger, C., Huber, K.-P. (2000). " Analyzing the footsteps of your customers," In WebKDD 2000.
[37] Wood S. L. (2002). Future Fantasies: A Social Change Perspective of Retailing in the 21st Century, Journal of Retailing, Vol.78, pp.77-83.