

Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation

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Abstract

This article examines how men and women differ in both their perceptions of the risks associated with shopping online and the effect of receiving a site recommendation from a friend. The first study examines how gender affects the perceptions of the probability of negative outcomes and the severity of such negative outcomes should they occur for five risks associated with buying online (i.e., credit card misuse, fraudulent sites, loss of privacy, shipping problems, and product failure). The second study examines gender differences in the effect of receiving a recommendation from a friend on perceptions of online purchase risk. The third study experimentally tests whether, compared to men, women will be more likely to increase their willingness to purchase online if they receive a site recommendation from a friend. The results suggest that, even when controlling for differences in Internet usage, women perceive a higher level of risk in online purchasing than do men. In addition, having a site recommended by a friend leads to both a greater reduction in perceived risk and a stronger increase in willingness to buy online among women than among men.

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1. Introduction

Although online purchasing still accounts for only a small portion of total consumer sales, it is a small portion that is quickly growing, with projections reaching US\$141 billion in annual online consumer sales for 2002 (Pastore, 2000a). What is not clear about projections such as this one is whether they have taken into account the fact that most Americans who are connected to the Internet today report being very concerned with the security of making online purchases. Interestingly, this concern is particularly pronounced among females and those who describe themselves as novices on the Internet (Kehoe et al., 1998). Clearly, if e-commerce is to live up to its full potential, online retailers must gain an understanding of which risks of online purchasing consumers are most concerned with as well as what specific steps can be taken to help reduce such risk perceptions, particularly for those who perceive them as severe.

The current work focuses on how males and females differ in their perception of both online shopping risks and the

effectiveness of recommendations from friends as a reducer of perceived risk. The results offer valuable insights for marketers as well as consumer behavior researchers. Given that women make the majority of household purchases in most cultures, reducing females' perceptions of online purchase risks could play a central role in the success of many online retailers.

1.1. The importance of identifying and reducing perceived risks

The study of perceived risk has a long history in the marketing literature. Researchers generally agree that perceived risk is a combination of the perception of the likelihood that something will go wrong and the perception of the seriousness of the consequences if it does (Kaplan et al., 1974; Taylor, 1974; Bettman, 1973; Lopes, 1995). However, the distinction between these two aspects of risk has not yet been incorporated into examinations of perceptions of online purchase risks. This dual conception of risk allows us to better pinpoint the nature of the differences in perceived risk and thus increases the precision with which actions to reduce risk can be taken. Our first study adds to the understanding of the perceived risks of the online marketplace by examining

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perceptions of both the probability and the seriousness of failure of five risks associated with purchasing online.

Although understanding what risks are perceived by various segments is a valuable piece of information in its own right, from a managerial perspective, learning how to reduce perceived risk and what actions reduce risk for which types of customers is even more valuable. Prior research examining risk perceptions in marketing has found that risk perceptions are negatively correlated with willingness to buy (Shimp and Bearden, 1982; White and Trully, 1989). Since many online marketers focus either primarily on male or primarily on female consumers, understanding how gender influences the effect of receiving a site recommendation from a friend could be useful in helping to tailor one's risk reducing strategies to the customers being targeted. Our second and third study investigate how gender influences the effect of receiving a recommendation from a friend on both perceptions of risk and willingness to purchase online from a conventional outlet.

1.2. The need to control for Internet usage in examining gender differences

Most of the recent growth in the online community has been among female consumers; while the male online community increased by approximately 60% between 1996 and 1999, the female online population increased by more than 300% during the same time period (Levy, 1999). In fact, as of May 2000 the number of women online is roughly equal to the number of men online in the United States; 49% women and 51% men (Allen, 2001; Pastore, 2000c).

Yet, although the gender gap in terms of the numbers of individuals online has vanished, gender differences may still exist in terms of several Internet-related attitudes and activities. For example, prior research suggests that women are less interested in the Internet than are men (Roper, 1998) and that, within the online population, women spend less time online than men do (Allen, 2001; Pastore, 2000c; Kehoe et al., 1998; Bartel-Sheehan, 1999) and view fewer pages (Allen, 2001). In addition, women have been found to be less likely than men to buy online (Allen, 2001; Pastore, 2000b; Bartel-Sheehan, 1999; Briones, 1998) and have also been found to spend less money, on average, online (Allen, 2001). This is in spite of the fact that women account for well over 70% of all purchases made in more traditional "off-line" purchase environments, such as retail stores and catalogs (U.S. Census, 2000).

One possible explanation for the gender gap in online purchasing is that women are more concerned than men with the risks of buying online (Kehoe et al., 1998; Bartel-Sheehan, 1999). However, usage differences offer a possible alternative explanation for the observed difference in purchasing. Prior research has shown that as Internet usage increases, perceived online purchase risk decreases (Miyazaki and Fernandez, 2000; Kehoe et al., 1998). Since women still use the Internet less frequently than men

(Kehoe et al., 1997, 1998; Bartel-Sheehan, 1999), without controlling for usage differences it is impossible to know if the gender differences previously observed in risk perceptions are truly a function of inherent differences between males and females, or merely an artifact of gender differences in Internet usage. Hence, in all three of the studies presented here, we control for usage differences in assessing gender differences in online behaviors. This not only allows us to control for expertise, but also to test an alternative explanation for previously observed gender differences in risk perceptions associated with online purchasing.

1.3. Expected gender difference in the perceived risks of online purchasing

While several factors may play a role in the gender difference observed in online purchasing, one likely component is that women may perceive purchasing online to be riskier than men do. After all, as perceived risk of purchasing decreases, consumers' willingness to buy increases (Shimp and Bearden, 1982; White and Trully, 1989). Prior research documenting gender differences in risk perceptions suggests that gender differences in online purchasing are likely. Specifically, women have been found to perceive greater risks in a wide variety of domains including financial, medical, and environmental (Brody, 1984; Gutteling and Wiegman, 1993; Gwartney-Gibbs and Lach, 1991; Steger and Witt, 1989; Stern et al., 1993). Interestingly, gender differences in perceptions of the likelihood of a negative outcome have been observed even among experts, such as scientists with high levels of knowledge in technical risk assessment procedures (Slovic et al., 1997; Gardner and Gould, 1989; Barke et al., 1997). In the context of buying online, expertise is likely to be a function of Internet usage. This suggests that to examine whether females will perceive greater risks to purchasing online, when controlling for expertise, one must control for differences in Internet usage. This advances the following prediction:

Hypothesis 1: Controlling for Internet usage, compared to males, females will perceive the likelihood of negative outcomes as the result of purchasing online to be greater.

Prior research has also demonstrated that when the probability of a negative outcome is held constant (e.g., objective probabilities are given), women are often found to be more risk averse than men (Byrnes et al., 1999; Hersch, 1997; Bajtelsmit et al., 1997). This suggests that consequences of a negative outcome will also be perceived as more severe by females. More formally:

Hypothesis 2: Controlling for Internet usage, compared to males, females will perceive the consequences of negative outcomes as the result of purchasing online to be greater.

While prior research concerning online marketing has already found that women perceive online shopping to be

riskier than men do (Kehoe et al., 1998), this research did not control for Internet usage and hence might have captured a spurious correlation. It also did not distinguish between the perception of the probability of negative consequences and the severity of such negative outcomes, should they occur. Thus, the current research offers a more in-depth examination of the nature of gender difference in online risk perceptions.

1.4. Gender difference in concerns regarding online privacy

Previous work suggests that females are more concerned than males with losing their privacy both in Internet contexts (Bartel-Sheehan, 1999; Kehoe et al., 1997) and non-Internet contexts (Westin, 1997). However, in their explorations of gender differences in online privacy concerns, neither Bartel-Sheehan (1999) nor Kehoe et al. (1997) controlled for differences in Internet usage rates. Furthermore, neither examined the risk perceptions associated with violations of privacy in terms of both the probability and the severity of negative consequences. Combined, prior research suggests that women are generally more concerned with loss of privacy (Westin, 1997), and that this is also evident in the context of Internet privacy (Kehoe et al., 1997, 1998; Bartel-Sheehan, 1999), advances the following hypothesis:

Hypothesis 3: Controlling for Internet usage, concerns regarding the severity of the consequences of loss of privacy in online purchasing will be stronger among females than among males.

In addition, prior work documenting that even among experts, females generally perceive negative outcomes as more likely to occur (Slovic et al., 1997), along with research suggesting that women are generally more concerned about the possibility of losing their privacy (Kehoe et al., 1997), advances the following hypothesis:

Hypothesis 4: Controlling for Internet usage, concerns regarding the likelihood of loss of privacy in online purchasing will be stronger among females than among males.

1.5. Gender differences in the effectiveness of recommendations as a risk reducer

Much of the literature on gender differences has focused on the fact that females not only place more emphasis on maintaining relationships, but that they also communicate with one another more often (Tannen, 1990; Brannon, 1999). Indeed, across cultures, it has been found that males are encouraged from an early age to be independent, while females are socialized to be interdependent and socially connected (Chodorow, 1971; Gilligan, 1982; Spence and Helmreich, 1979; Brannon, 1999; Tannen, 1990). Perhaps as a result of this socialization, women are more likely to describe themselves in terms of their connectedness to

others, and men are more likely to describe themselves in terms of their separateness from others (Lyons, 1983; Mackie, 1983; Pratt et al., 1990; Stern, 1990; Clancy and Dollinger, 1993; Boggiano and Barrett, 1991; Bybee et al., 1990; Ogilvie and Clark, 1992). Beyond self-descriptions, women have been found more likely to both disclose more personal information to others and change their own behavior as a reaction to cues from those they are interacting with (Brannon, 1999). It has also been found that women are more likely than men to get together or call one another just to chat or share personal experiences (Tannen, 1990). Even in the context of online behavior, it has been observed that women view the chance to communicate with others to be among the greatest benefits of the Internet (Brunner and Bennett, 1997). The large literature supporting the notion that females place more stress on regular communication and react more to cues from others than men do advances the following hypothesis:

Hypothesis 5: Controlling for Internet usage, receiving a recommendation from a friend will have a greater effect on reducing risk perceptions among women than among men.

In addition, since risk perceptions are negatively correlated with willingness to buy (Shimp and Bearden, 1982; White and Truly, 1989), we predict the following:

Hypothesis 6: Controlling for Internet usage, receiving a recommendation from a friend for a specific online retailer will have a greater positive effect on willingness to purchase online among women than among men.

2. The studies

2.1. Study 1

2.1.1. Methods and measures

The data came from 260 paper-and-pencil surveys. Forty students who had been trained by the primary researcher collected the data via intercepts. Given the self-administered nature of the survey, little expertise was required of the interviewers, who were instructed to collect responses from a roughly equal number of men and women. Respondents were approached in and around a university community located in a major metropolitan area during November of 1999. Respondents were rewarded with a pen embossed with "Thank you from the Marketing Department." Over 60% of those approached agreed to complete the survey. The sample included 54% men and 46% women. Using a seven-point self-reported Web usage scale anchored by *nonuser* (1) and *heavy user* (7), the majority of respondents rated themselves as moderate users (3–5 = 66%). Respondents' ages ranged from 14 to 70 years (mean = 23.6, S.D. = 7.2). Given the location of the data collection, the sample over represents student-aged respondents (14–18 years old = 7%; 19–22 = 58%; 23–30 = 25%; 31–40 = 6%; 41–50 = 2%; > 50 = 2%). However,

analysis showed that age had no significant effect on perceived risk [Wilk's lambda: $F(1,240) = 0.63, P > .79$]. Neither did age have a significant impact on usage. Additionally, the gender groups did not differ in mean age (men = 23.40, women = 23.75; $P > .50$).

Survey questions dealt with Web usage, perceived risks of purchasing online, and basic demographics. The various aspects of Web usage included: typical weekly time spent on the Web (excluding e-mail), typical weekly number of Websites visited, frequency of collection of product-related information in the last 2 months, frequency of purchasing online in the last 2 months, and self-reported Web usage level. These questions were designed to capture a variety of different aspects of Web usage. The Web usage questions were used as covariates to control for Internet usage effects.

The perceived risks of purchasing online were identified via informal interviews, a pair of focus groups comprised of Internet users, and previous research on risks consumers associate with buying from nonstandard retail establishments (Hawes and Lumpkin, 1986; Kehoe et al., 1998; Miyazaki and Fernandez, 2000; Bartel-Sheehan, 1999; Jasper and Ouellette, 1994). The focus groups and the informal interviews were balanced in terms of both gender and prior online experience. Five major perceived risks were identified: unauthorized use of credit card information, purchasing from a fraudulent site, having one's personal information (other than credit card information) become public, encountering problems in the shipping and delivery, and having the product not perform as expected. For each of these five online purchase risks, we examined the perceptions of both the probabilities of something going wrong and the severity of the consequences if it were to occur using two 7-point scales anchored by *very unlikely* (1) to *very likely* (7) and *not at all serious* (1) to *very serious* (7), respectively.

2.1.2. Results

A MANOVA analysis of the various risk components with covariates to control for usage effects was used to analyze the data. A MANOVA analysis was chosen because the five types of online buying risk (credit card misuse, fraud sites, loss of privacy, shipping problems, product performance) and the two aspects of risk (probability of failure and severity of consequences) captured different concepts, but were still expected to be correlated with one another (82% of the bivariate correlations are significant, ranging from .13 to .61). Since many of the probability measures are correlated with the consequence measures, a single MANOVA was used to assess the effects of gender on risk perceptions.

Controlling for Internet usage differences, women still perceived higher risks than men in both probabilities and consequences [Wilk's lambda: $F(1,230) = 2.61, P < .005, \eta^2 = .102$]. In terms of specific risks (see Table 1), as predicted, women tended to perceive greater severity to both the consequences and likelihood of failure. The *consequences* of failure were perceived to be more severe for

Table 1

Study 1: Means (S.E.) of perceived risks by gender controlling for Internet usage

Risk aspect	Overall	Gender	
		Men ($n = 131$)	Women ($n = 115$)
<i>Loss of privacy</i>			
Probability	4.38 ^a (0.11)	4.23 (0.15)	4.54 (0.17)
Consequence	5.52 ^b (0.10)	5.21 (0.14)	5.84 (0.15) **
<i>Credit card misuse</i>			
Probability	3.56 (0.11)	3.24 (0.15)	3.88 (0.16) **
Consequence	6.17 (0.09)	5.84 (0.13)	6.50 (0.14) ***
<i>Fraudulent site</i>			
Probability	3.54 (0.10)	3.29 (0.13)	3.80 (0.15) **
Consequence	5.97 (0.09)	5.73 (0.12)	6.22 (0.14) **
<i>Product not perform</i>			
Probability	3.64 (0.09)	3.53 (0.12)	3.75 (0.14)
Consequence	5.15 (0.10)	5.05 (0.13)	5.26 (0.14)
<i>Shipping problems</i>			
Probability	3.48 (0.09)	3.25 (0.13)	3.70 (0.14) *
Consequence	4.92 (0.10)	4.81 (0.14)	5.03 (0.16)

^a 1–7 scale (*very unlikely*–*very likely*).

^b 1–7 scale (*not at all serious*–*very serious*).

* Significant at the .05 level.

** Significant at the .01 level.

*** Significant at the .001 level.

three of the five risks: credit card misuse [$F(1,239) = 10.32, P < .001, \eta^2 = .041$], fraudulent sites [$F(1,239) = 6.95, P < .009, \eta^2 = .028$], and loss of privacy [$F(1,239) = 10.07, P < .002, \eta^2 = .040$]. In addition, women perceived a significantly higher *likelihood* of negative outcomes in three of the five risks: credit card misuse [$F(1,239) = 7.82, P < .006, \eta^2 = .032$], fraudulent sites [$F(1,239) = 7.55, P < .006, \eta^2 = .031$], and shipping problems [$F(1,239) = 4.58, P < .033, \eta^2 = .019$].

As hypothesized, the consequences of loss of privacy were perceived as substantially more serious for women than for men. The gender difference in concern with the likelihood of loss of privacy did not differ significantly [$F(1,239) = 2.24, P < .14, \eta^2 = .009$], although it was in the expected direction. These results suggest that the major gender difference in privacy concern may center on the perceived consequences of loss of privacy rather than its perceived likelihood.

2.2. Study 2

2.2.1. Methods and measures

Whereas the first study focused on gender effects on the perceived risks of purchasing online, the second study examines ways such risk perceptions might be reduced. Thus, using similar methods to those obtained in the first study, 276 surveys were collected from members of the community on and around a southeastern university in a major metropolitan area. None of the individuals who had completed the first survey or either of the pretests partici-

pated in the second study. As in Study 1, embossed pens were used as a reward for completing the survey. This second data collection took place during late November and early December of 1999.

Similarly to Study 1, the sample consisted of 51% males and 49% females, and our respondents included 18% self-reported light users of the Internet (1–2), 22% self-reported heavy users (6–7), and 60% self-reported moderate users (3–5), with ages ranging from 18 to 70 years (mean = 25.7, S.D. = 9.5). As with the first survey, the location of the second survey overrepresented student-aged respondents (14–18 years old = 2%; 19–22 = 54%; 23–30 = 26%; 31–40 = 12%; 41–50 = 2%; >50 = 4%). However, analysis showed that age had no significant effect on perceptions of risk reduction [Wilk's lambda: $F(1,217) = 1.39, P > .08$]. The objective measures of usage showed no difference in usage based on age (all P values $> .10$). The gender groups did not differ in mean age (men = 25.27, women = 26.22; $P > .40$). In short, it appears that age had no major impact on any of the relevant measures.

Study 2 included questions concerning Web usage habits. The aspects of Web usage included open ended questions measuring: typical weekly time spent on e-mail (“Approximately how many hours do you spend writing or reading e-mail in a typical week?”), typical weekly number of Websites visited (“Approximately how many different Websites do you visit in a typical week?”), frequency of collection of product-related information (“In the last 2 months, approximately how many times did you use the Web to collect product information?”), and frequency of purchasing online (“In the last 2 months, approximately how many times did you use the Web to make a purchase?”). In addition, a seven-point scale was used to measure self-reported Web usage level [*nonuser* (1) to *heavy user* (7)]. As in Study 1, the Web usage questions were used as covariates to control for usage effects.

The effectiveness of receiving a recommendation from a friend was examined using a four-point scale [no effect on risk (0), slightly decreases risk (1), moderately decreases risk (2), and substantially decreases risk (4)]. Only a single item was used to assess risk reduction, rather than assessing reduction of the probability of the risk and reduction of the severity of the consequences. This decision was based on the pretest, in which we found that separating an assessment of the reduction of perceived likelihood and reduction of perceived severity of a risk reducer was a much more difficult and ambiguous task than assessing likelihood and severity of the risks themselves. Study 2 also included 32 other potential risk reducers. Only two others showed a significant difference based on gender; buying standardized products, and having purchased from the Website before were perceived as more effective risk reducers for women than for men [standardized product: men = 1.55, women = 1.91, $F(1,242) = 6.82, P < .01, \eta^2 = .027$; purchased product before: men = 1.31, women = 1.64, $F(1,242) = 5.64, P < .02, \eta^2 = .023$].

2.2.2. Results

The goal of Study 2 was to see how gender influenced the effectiveness of recommendations from friends on perceptions of the risks of buying online. As hypothesized, perceived risk was marginally more reduced for females than for males by receiving a recommendation from a friend [men = 1.86, women = 2.08, $F(1,242) = 3.18, P < .08, \eta^2 = .013$]. This result was in line with prior work suggesting that women are more likely to respond to the suggestions and actions of others in their social network (Brannon, 1999).

2.3. Study 3

The final study was an experiment designed to test whether recommendations from friends would have a stronger effect on females than on males in increasing willingness to buy online. This study extended the findings of Study 2 to see if females' greater reduction in risk perceptions due to recommendations from friend would lead to a greater willingness to buy online.

2.3.1. Method

Subjects in the experiment were 182 undergraduate and 38 MBA students at a private southeastern university who participated in this study as a part of a course requirement. None of the subjects who participated in this experiment had participated in any of the prior studies or pretests. Subjects were randomly assigned to one of two questionnaires in a between-within design. Each subject was given four purchase scenarios and was asked to indicate on an 11-point scale their relative likelihood of buying the item online as opposed to buying it from a traditional retail outlet [*definitely buy online* (–5) to *definitely buy offline from the traditional outlet* (+5)].

In each scenario, a description was given for both the retail outlet and the online store. Prices varied slightly between the online and traditional option such that the online option was always slightly less expensive, even after including the cost of shipping. The purchase scenarios involved an airline ticket, a CD being purchased as a gift for a friend, a jacket, and a textbook. To insure that delivery time would not dominate the decision, subjects were told that the product being purchased would not be needed for another 6–12 weeks. In each scenario, subjects were told that they had purchased from the traditional outlet before, but not from the online retailer. However, in two of the four scenarios, the online store was recommended by either “a close friend” or “two friends” who had purchased from the site themselves. In the other two scenarios, no personal recommendation information was given for the online option. Other than this, the information given for each option and condition was identical. Each subject was shown two scenarios with no recommendation, one scenario with a recommendation from a close friend, and one scenario with recommendations from two friends. The two versions of the questionnaire were counterbalanced and differed only in

terms of which product scenarios had recommendations from friends and which did not.

2.3.2. Results

Study 3 tested the hypothesized gender difference in the effectiveness of personal recommendations on online purchasing. To this end, we looked for an interaction between gender and the presence of a recommendation on purchase likelihood. An ANCOVA analysis (controlling for Internet usage) of the effects of recommendations and gender on people's willingness to buy a product online showed a strong significant interaction [$F(1,603) = 16.29, P < .0001$]. Because the results show the same effect for both the undergraduate and MBA subjects, they are aggregated here for the purpose of analysis. Since there was no significant three-way interaction of recommendation, gender, and product scenario ($P > .85$), results are aggregated across product scenarios. The nature of this effect is shown below (negative numbers signify a preference for buying online and positive numbers a preference for buying in the store).

	Recommendation, mean (S.D.)	No recommendation, mean (S.D.)
Men	-0.56 (3.50)	-0.17 (3.73)
Women	-1.25 (3.38)	0.86 (3.70)

Simple effect contrasts showed no significant effect of recommendation for men [$F(1,603) = 1.54, P > .21$]. Conversely, women showed a strong effect of recommendation on their willingness to buy online [$F(1,603) = 48.73, P < .0001$]. Interestingly, although women were more averse to buying online than men in the absence of a recommendation from a friend, the opposite was true when recommendations were given for online options.

Study 3 also included two types of recommendations from friends. In one case, the recommendation came from "a close friend." In the other case, the recommendation came from "two friends." An ANCOVA analysis breaking apart these two types of recommendations and comparing them to the no recommendation condition showed a strong interaction [$F(1,593) = 8.24, P < .001$]. The nature of the interaction was that for men, there was no significant difference between no recommendation and a recommendation from a single close friend [means: no recommendation = -0.17, a close friend = 0.05; $F(1,593) = 0.33, P > .56$], but there was a significant difference between having one close friend and two friends make a recommendation [means: a close friend = 0.05, two friends = -1.17; $F(1,593) = 7.60, P < .01$]. For women, the effect was somewhat different; being driven by the difference between no recommendation and the recommendation of a close friend [means: no recommendation = 0.86, a friend = -0.92; $F(1,593) = 23.38, P < .0001$] with only a directional difference between the effects of one close friend and two friends [means: a friend = -0.92, two friends = -1.58;

$F(1,593) = 2.44, P < .12$]. These results suggest several possible explanations. For example, women may be more strongly affected by the word "close" than men are because they see a greater distinction between "close friends" and just "friends." However, it is also possible that men are more strongly affected by multiple recommendations due to being socialized to think more quantitatively. Future work could examine these and other possible explanations by testing the interaction between whether the friend or friends are described as "close friend(s)," "friend(s)," or mere "acquaintance(s)" and the number of individuals making the recommendation.

3. Conclusion

In this article, we controlled for Internet usage in examining how gender influences both the perceptions of the risks associated with shopping online and the effectiveness of recommendations from friends in reducing perceived risk. As predicted by our first hypothesis, in Study 1 we found that, even when controlling for Internet usage, compared to men, women perceived more risk to buying online both in terms of probability and in terms of likelihood. This finding is in line with previous research documenting gender differences in perceptions of risk (Byrnes et al., 1999; Hersch, 1997; Bajtelsmit et al., 1997; Flynn et al., 1994; Gutteling and Wiegman, 1993; Gwartney-Gibbs and Lach, 1991; Steger and Witt, 1989; Stern et al., 1993), as well as with prior research suggesting that gender differences in risk perceptions do not depend on differences in expertise or experience (Gardner and Gould, 1989; Barke et al., 1997; Slovic et al., 1997). These results suggest that online marketers may want to work on reducing perceptions of risk when targeting female consumers, even if those females are experienced Internet users. In the first study, we also found that, as predicted, compared to men, women perceive more severe consequences to loss of privacy. However, contrary to what we predicted, women did not perceive a higher probability of loss of privacy than men did.

The results of Study 2 demonstrated a marginally larger reduction in perceived risk after receiving recommendations from friends among women than among men. Study 3 showed that recommendations from friends strongly influenced women to buy online but had no significant effect on men. One implication of this finding is that anything online marketers can do to encourage positive word of mouth is very likely to have a particularly positive effect among female consumers. Thus, companies that market primarily to women might benefit the most from offering programs where rewards are given to those customers who recommend the site to others. A less expensive option would be simply offering a "tell a friend about this site" link to facilitate the process of shoppers sharing their experiences with others.

3.1. Future research

Prior work has suggested that women communicate with their friends more often than men do and are also more likely to discuss personal experiences (Brannon, 1999; Tannen, 1990). In a similar vein, we found that, compared to men, women spend a greater portion of their time online using e-mail to stay in touch with others [women 38%, men 27%; $F(1,268) = 13.84$, $P < .0001$]. This was consistent with prior findings suggesting that women view the chance to communicate with others to be among the greatest benefits of the Internet (Brunner and Bennett, 1997). Combined, these results suggest that women may not just be more likely to listen to advice from friends, but also more likely to give advice to friends. Future work could also examine whether the tendency to tell others about one's own online purchase experiences is related to the degree to which one is affected by recommendations from others.

Another direction for future research would be to examine alternative explanations for the gender differences observed in Study 3, where we examined willingness to buy rather than risk perceptions. Although the results of Study 3 are likely to have been driven by a reduction in the perceived likelihood of a negative outcome, it is also possible that women will be more willing to take a risk if they feel they are not alone in doing so. The idea of having a shared experience might play as much of a role in willingness to buy as a sense of risk reduction. Future research could examine this as well as other possible mediating factors that might influence the effect of recommendations on willingness to purchase.

3.2. Final thoughts

This article dealt with perceptions of online shopping risks rather than actual online shopping risks. While the perceived risks and actual risks are rarely identical, it does seem plausible that the more consumers share their experiences with one another, the more likely their perceptions of risk will be to mirror actual risks. Thus, when dealing with female consumers, who tend to both share their experiences with others and respond to recommendations from others, it may be particularly important to realize that one of the best ways to reduce the perceptions of risk that women associate with a given site may be to take actions that both reduce the risks of buying from that site and give women an incentive for sharing their positive experiences with their friends.

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