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Akhter, Syed H., "Privacy Concern and Online Transactions: The Impact of Internet Self-efficacy and Internet Involvement" (2014). *Marketing Faculty Research and Publications*. 135.

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Privacy concern and online transactions: the impact of internet self-efficacy and internet involvement

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Abstract

Purpose

This study aims to examine the effects of internet self-efficacy and internet involvement on privacy concern and the effect of privacy concern on the frequency of online transactions. The study also seeks to examine the direct effect of internet self-efficacy and internet involvement on the frequency of online transactions.

Design/methodology/approach

A structural equation model was developed to test the hypotheses. The model was tested using the LISREL 8.8 software and both structural and measurement parameters were estimated.

Findings

Findings suggest that internet self-efficacy and internet involvement affect privacy concern negatively; and privacy concern, in turn, affects frequency of online transactions negatively. Findings also indicate that the direct effect of internet self-efficacy and internet involvement on the frequency of online transactions is positive. All parameters are significant and in the hypothesized direction.

Practical implications

Findings highlight the significance of internet self-efficacy and internet involvement in explaining both privacy concern and online transactions. The negative impact of privacy concern shows strategically why businesses should take measures to protect privacy of consumers and assure them that the information they provide is protected and secure.

Originality/value

This research contributes to the debate on privacy concern and adds to the growing body of literature on the impact of privacy concern on online transactions. Both antecedents and consequence of privacy concern are examined in the study.

Keywords

E-commerce, Internet involvement, Internet self-efficacy, Online transactions, Privacy concern

An executive summary for managers and executive readers can be found at the end of this issue.

The warning about the threat to individual privacy came very early. In 1973, Horst Feistel observed that “computers now constitute, or will soon constitute, a dangerous threat to individual privacy” (Feistel, 1973, p. 15). Four decades later, the threat to individual privacy persists and remains a key concern of consumers. Privacy concern remains salient because of the massive amount of personal information that businesses collect. The concern is also heightened because consumers generally lose control over the data they provide to businesses.

The issue of privacy becomes salient especially when consumers conduct online transactions because of the personal and financial information required. The release of such information is viewed as risky by consumers because they become vulnerable to firms' potential opportunistic behaviors (Milne and Gordon, 1993). The information that businesses collect can be misused by both authorized and unauthorized users, raising privacy concerns (Clarke, 1998; Webster, 1998). In a recent TRUSTe survey, 89 percent of US adults indicated that they worry about their online privacy and 55 percent strongly agreed with the statement that they avoid doing business with companies that they do not trust would protect their privacy. What is also noteworthy about the survey findings is that 40 percent of the respondents felt that they mostly or totally understand how to protect their online privacy (Bachman, 2013). In another recent survey, online shopping was the most commonly cited activity linked with privacy concern (Tode, 2013).

Although privacy concern is considered a critical dimension of online consumer behavior, a review of the literature indicates that very few studies have examined its psychological antecedents. Phelps *et al.* (2001), in the direct marketing context, found that positive attitudes toward direct marketing reduced consumers' privacy concern, whereas greater desire for information control increased it. In a more recent study, Youn (2009) found

no significant relation between internet self-efficacy and the level of privacy concern. Our goal is to add to this body of research by focusing on two psychological antecedents of privacy concern, internet self-efficacy and internet involvement. We also examine how these two antecedents of privacy concern and privacy concern itself impact the frequency of online transactions.

In the remainder of the paper, first, we cover the saliency of privacy concern and propose a conceptual model; second, we develop and present the hypotheses; third, we cover issues related to sampling, measurement, statistical technique, and findings; and fourth, we conclude with a discussion of findings and implications.

Conceptual model

From a consumer's perspective, the experience of conducting online transactions is psychologically and procedurally different from other internet-related activities such as exchanging emails, sharing pictures, or reading newspapers. One of the requirements for conducting online transactions is that consumers need to share personal and financial information with the firm, which raises concern about privacy and the misuse of personal information (Biswas and Biswas, 2004). While the release of personal and financial data can compromise privacy, it is also up to the consumers to decide how much and with whom they share the information on the internet. Thus, they can control the type of information they provide, how they provide them, and to whom they provide them.

Drawing from social psychology and consumer behavior literature, the paper proposes that self-efficacy and involvement are significant antecedents of privacy concern. Self-efficacy is defined as beliefs in one's capabilities to execute certain tasks (Bandura, 1998) and involvement is defined as the state of perceived relevance of an object to a person (Zaichkowsky, 1985). Applying these well-established definitions to the internet domain, internet self-efficacy is being defined as beliefs in one's ability to navigate the internet and accomplish different tasks; and internet involvement is being defined as the extent to which the internet is perceived as personally relevant.

In the proposed model, internet self-efficacy and internet involvement are shown to impact privacy concern. Furthermore, internet self-efficacy and internet involvement have both a direct effect and an indirect effect through privacy concern on the frequency of online transactions (see Figure 1). The proposed model has theoretical and strategic significance. Theoretically, the adoption of an interdisciplinary approach provides a richer explanation of online transactions. The model also adds to the literature by explaining both the antecedents and consequence of privacy concern. From a strategic perspective, the study of the antecedents of privacy concern is meaningful because online transactions are expected to play a key role in generating revenues for firms. Furthermore, as firms continue to build the internet infrastructure, it will be crucial for them to understand how privacy concern impacts the frequency of online transactions. Findings from this study will also be useful to managers in designing interventions strategies, which are the different options available to firms to facilitate and manage online transactions. We present the hypotheses next.

Hypotheses

Internet self-efficacy and privacy concern

The use-related capabilities that people possess and the beliefs they have about their ability to use a product determine how the product will be used for achieving different goals. Bandura (1997) suggests that as people's lives revolve around achieving desired goals, self-efficacy becomes the very core of human life. Self-efficacy relates to the beliefs that people hold about their "capabilities to organize and execute the courses of action required to produce given levels of attainments" (Bandura, 1998, p. 624). It is the perceived behavioral control over the performance of the behavior itself that is associated with self-efficacy (Ajzen, 2002).

The use of a high-technology medium such as the internet requires knowledge and skills. Research shows that people with higher self-efficacy are more confident about their ability to achieve different goals on the internet including the management of privacy. They also view themselves as more competent in solving problems that can arise when using the internet. In contrast, people lacking use-related capabilities may not feel confident in managing private information. Venkatesh (2000) and Agarwal *et al.* (2000) found that computer self-efficacy increased the perceived ease of use. People with higher levels of self-efficacy, for example, were able to perform a task more easily and efficiently than those with lower levels of self-efficacy.

Although privacy concern is widespread, research shows that people with greater ability are less concerned about the security of information. Han and Maclaurin (2002) found privacy fears to be the greatest among those who are less savvy with technology. As self-efficacy increases people exhibit more self-confidence in their ability to use the internet safely and securely. They will know what information to provide and to whom and how to provide the information, thus alleviating privacy concern. Therefore, the following is proposed:

H1. As internet self-efficacy increases, privacy concern in using the internet will decrease.

Internet self-efficacy and online transactions

Existing research shows that self-efficacy influences both attitudes and behaviors in different situations (Maddux *et al.*, 1986). Self-efficacy leads to a judgment of competency about completing a specific task. It also enhances the conviction to mobilize cognitive resources to successfully execute a specified task (Stajkovic and Luthans, 1998). For example, people with higher levels of self-efficacy show greater liking for word processors and personal computers and also higher intention to use them (Hill *et al.*, 1985). They also demonstrate greater willingness to use the internet for online transactions. As an individual difference variable, self-efficacy captures individual's responses to challenges (Mukhopahyay and Johar, 2005). When beliefs about self-efficacy are strengthened, commitment to search for suitable alternatives for achieving goals increases (Locke and Latham, 2002).

As using the internet for conducting online transactions can be challenging, people with higher self-efficacy will tend to experiment more and learn more. Giovannelli (2003) found that experts are more reflective and achieve more expertise by spending more time on a task. The perception of efficacy encourages people to spend more effort in learning new things (Bandura, 1997). On the other hand, feelings of low self-efficacy lead people to stay with the familiar even when a new alternative is acknowledged as a better option (Selzer, 1983). In a survey, 20 percent of the respondents indicated that they did not try out the internet due to lack of confidence or skills (McIntosh, 2002). Self-efficacy is also found to increase the perceived ease of use (Venkatesh, 2000; Agarwal *et al.*, 2000) and comfort level in handling the internet to achieve different tasks. The behavioral link between self-efficacy and online transactions rests on the thesis that the perceived feeling of competency will increase the frequency of online transactions. Therefore, the following is proposed:

H2. As internet self-efficacy increases, frequency of online transactions will increase.

Internet involvement and privacy concern

The construct of involvement has played a major role in explaining consumer behavior, since Sherif and Cantril (1947) and Sherif (1980) hypothesized that involvement occurs when an object or an issue is related to the unique cluster of attitudes and values that comprise a person's ego. Extending this view to marketing, Day (1970, p. 45) defined involvement as "the general level of interest in the object or the centrality of the object to the person's ego structure." Zaichkowsky (1985, p. 342), likewise, defined involvement as "a person's perceived relevance of the object based on inherent needs, values, and interests." These definitions presume a subject-object relationship in which the subject (person) gets involved with an object (product) because of its relevance, importance, and centrality.

As an internal state of arousal (Andrews *et al.*, 1990), involvement would induce the use of the internet and people would find themselves using the internet for different purposes and with different frequencies. This can give rise to both situational and enduring relationships, a state in which the person spends considerable amount of time thinking about the product and interacting with it. Cass (2000) notes that as consumers interact with the product and think about it because of the special place it occupies in their lives, they develop a cognitive structure related to the product, which enhances the learning about the functionality and requirements of the product. Park and Byeong-Joon (2003) show that with utilitarian products, products used for solving problems, increasing involvement results in increasing product attribute knowledge.

In the case of a utilitarian product that can be used for different purposes, such as the internet, an increase in the level of involvement can be expected to change the cognitive structure resulting in enhanced knowledge about the internet. Knowledge about the internet will also increase the confidence level and enable people to better manage the release of personal data on the internet. People will know which organizations they can provide information to and with whom they can interact and conduct business safely. Therefore, the following is proposed:

H3. As internet involvement increases, privacy concern in using the internet will decrease.

Internet involvement and online transactions

Involvement has both a cognitive and a behavioral component. At the cognitive level, the product is related to consumers' centrally held values (Arora, 1982) and is reflected in the importance and relevance of the product to consumers (Houston and Rothschild, 1978; Lastovicka and Gardner, 1979). At the behavioral level, product involvement manifests itself in a number of observable physical interactions. For example, in the case of cars, consumers with higher levels of involvement may engage in different types of behavior such as performing their own repairs and maintenance, correcting nicks and scratches, and taking cars on pleasure drives (Bloch, 1981). Research shows that product involvement also influences information search (Jacoby *et al.*, 1978; Clarke and Belk, 1979), opinion leadership (Summers, 1970; Corey, 1971), decision making (Houston and Rothschild, 1978), and brand loyalty (Jacoby, 1971). Furthermore, as involvement increases, consumers are also more likely to devote more time to a product (Bloch and Richins, 1983) and learn about its different uses. Yang (2012) found that Facebookers' involvement impacted their purchasing intentions. And Bosnjak *et al.* (2007) found consumer affective involvement to be a significant determinant of online shopping. Thus, it is being hypothesized that as the level of involvement with the internet increases, consumers will tend to learn more about the internet and use it for conducting online transactions. The following is proposed:

H4. As internet involvement increases, frequency of online transactions will increase.

Privacy concern and online transactions

Concerns about privacy and security of personal information are pervasive because of the massive amount of personal information businesses collect to build databases for developing marketing strategies (Berry, 1994; Culnan and Armstrong, 1999). As the use of the internet for conducting transactions requires sharing personal information, the protection and authorized use of such information have become a critical concern among consumers. Consumers are frequently exposed to news about identity theft, spyware, adware, spam, phishing, and pharming, among other things. From consumers' perspective, privacy concern arises from not knowing how the personal information they provide will be protected and used. Yankelovich Partners found that 79 percent of respondents leave the websites when asked to provide private information and 90 percent reported that privacy was the most pressing concern (Phelps *et al.*, 2001). Privacy concern has also been found to reduce the use of direct marketing (Milne and Boza, 1999) and the intensity of catalog purchase behavior

(Phelps *et al.*, 2001). Privacy concern is thus hypothesized to inhibit people from using the internet for conducting online transactions. Therefore, the following is proposed:

H5. As privacy concern increases, frequency of online transactions will decrease.

Method

LISREL 8.8 was used to test the hypothesized relations in the proposed model. The data to test the hypotheses was collected through a survey questionnaire mailed to 5,000 randomly selected internet subscribers in the Midwest region of the US. The total number of responses received was 1,190 (see Table I for sample demographics – age, education, and income). A covariance matrix, which is recommended for the LISREL statistical procedure, was used to test the structural and measurement parameters (Joreskog and Sorbom, 1996). We discuss next the measurement of the three latent constructs (internet self-efficacy, internet involvement, and privacy concern) and one non-latent construct (the frequency of online transactions) used in the model.

Measurement

Internet self-efficacy

Underlying the concept of self-efficacy is the belief of perceived ability to successfully organize and execute a task. Bandura (2001) recommends that measures of self-efficacy should be worded to reflect beliefs associated with “can do” rather than “will do.” As self-efficacy is the belief that people have about their competency or ability to complete a task successfully, this belief may vary depending on the task. Therefore, Peterson and Arnn (2005) recommend that measures of self-efficacy should not be general but task specific. Bandura (2001) also notes that general purpose measures of self-efficacy may have no relevance to the “selected domain of functioning.” In view of these recommendations, internet self-efficacy in this study focused on beliefs about skills, ability, and confidence related specifically to the use of the internet.

In existing studies, measures of self-efficacy with regard to the use of the internet cover the ability to perform specific functions on the internet such as entering a web address, creating folders, and adding or removing bookmarks (Nahl, 1996; Nahl and Meer, 1997). Ellen *et al.* (1991) measured self-efficacy by asking subjects about their perception of the difficulty of using a computer program versus using the paper and pencil method. Other measures cover the ability to navigate the internet or close a browser (Joo *et al.*, 2000).

In this paper, beliefs reflecting three key elements (skill, ability, and confidence) were combined to measure internet self-efficacy (Tyson and Snyder, 1999; Easten and LaRose, 2000; Ma and Liu, 2005). The three items used to measure internet self-efficacy were worded as follows: I do not have the necessary skills to fully use the internet (item reverse coded), I do not have the necessary ability to fully use the internet (item reverse coded), and I am confident that I can solve any problems in using the internet. Respondents were asked to indicate their level of agreement with these statements on a Likert scale, ranging from 1 to 7, with 1 indicating strongly disagree and 7 strongly agree. These three items also correspond to Ajzen's (2002, p. 676) suggestion that items that load highly on self-efficacy deal with the “ease or difficulty of performing a behavior, with people's confidence that they can perform it if they want to do so.”

Internet involvement

Product involvement manifests itself as situational or enduring (Rothschild, 1975; Houston and Rothschild, 1978). Situational involvement results from specific product attributes and enduring involvement from long-term interest of consumers in the product and is a function of individual differences (Houston and Rothschild, 1978). In this study, the shortened version of the involvement scale was used (Zaichkowsky, 1994). The scale captures both situational and enduring involvement (Ram and Jung, 1994). A seven-point semantic difference

scale was used to obtain responses. Respondents indicated whether the internet was: unimportant-important, boring-interesting, irrelevant-relevant, unexciting-exciting, meaningless-meaningful, unappealing-appealing, ordinary-fascinating, worthless-priceless, uninvolved-involving, and unnecessary-necessary.

Privacy concern

A quick and convenient way to measure privacy concern would be to directly ask consumers how concerned they are about the ways companies use the data about them (Phelps *et al.*, 2001). This measure would be expected to summarize the concern that people have about privacy. However, this measure was not considered adequate for our proposed model, as privacy concern involves both the medium and the person. Privacy concern was thus measured by three indicators. Respondents were asked to indicate their level of agreement on a Likert scale, ranging from 1 to 7, with 1 indicating strongly disagree and 7 strongly agree. The following three items were used: Privacy is protected on the internet (item reverse coded), internet is secure for confidential information (item reverse coded), and I am concerned about my privacy on the internet.

Online transactions

Online transaction is the behavioral dimension of the proposed model. Three types of online transactions were studied: buying, banking, and investing online. Respondents were asked to indicate the frequency of use of these three activities, with frequency ranging from 0, not at all, to 7, very frequently. As the data was collected via a survey questionnaire, one of the concerns with self-reported behavior relate to the accuracy of the information provided by respondents. However, existing research shows a high correlation between self-reports of computer use and the electronic log data (Dean *et al.*, 1998). The close correspondence between these two types of data indicates that self-reported data is reflective of actual use and, therefore, can be used as a measure of the use of the internet for transactional purposes.

Findings

Model fit

For the proposed model, the χ^2 value of 844 with 146 degrees of freedom was significant with $p=0.00$. However, as χ^2 is influenced by sample size, where for large samples even trivial discrepancies become significant, it is recommended that other fit indices be examined to judge the fit of the model (Klem, 2000). These fit indices and their values are as follows: the Goodness of Fit Index (0.92), Adjusted Goodness of Fit Index (0.90), Comparative Fit Index (0.97), Non-Normed Fit Index (0.97), and Root Mean Square Error of Approximation (0.068). Based on the values of the above indices, the overall fit of the model can be considered satisfactory.

Measurement parameters

Three latent constructs were used to explain the frequency of online transactions. One indicator of each latent construct was set to 1 to ensure that the construct was measured on the same measurement scale as the corresponding indicator (Hayduk, 1988). Reliabilities for the three constructs were as follows: internet self-efficacy (0.77), internet involvement (0.95), and privacy concern (0.60). While the reliabilities of privacy concern and internet self-efficacy are in the acceptable range, the reliability of internet involvement is in the high range. Convergence validity for each construct was also established. Average variance extracted (AVE) of 0.5 or higher is considered as indicating adequate convergence. The AVE was as follows: internet self-efficacy (0.55), internet involvement (0.66) and privacy concern (0.54). To establish discriminant validity, AVE should be greater than the squared correlation between constructs. The AVE for each construct was higher than the squared correlation estimate (Hair *et al.*, 2006).

Structural parameters

The coefficient estimates for the various paths and the associated t-values support all five hypotheses (see Table II). All structural coefficients are significant and in the hypothesized directions. The effect of internet self-efficacy

on privacy concern (ξ_1 on η_1 , -0.17) is negative and significant; and the direct effect of internet self-efficacy on the frequency of online transactions (ξ_1 on η_2 , 0.22) is positive and significant, as predicted. The effects of internet involvement on privacy concern (ξ_2 on η_1 , -0.27) is negative and significant; and the direct effect of internet involvement on the frequency of online transactions (ξ_2 on η_2 , 0.22) is positive and significant, as predicted. The effect of privacy concern on the frequency of online transactions (η_1 on η_2 , -0.24) is negative and significant, as predicted (see Table II for parameter values and fit indices). As expected, internet self-efficacy and internet involvement are correlated and the correlation is positive and significant.

Conclusions

Theoretical implications

The proposed model adds to the literature by delineating both the antecedents and consequence of privacy concern. Specifically, findings suggest that internet self-efficacy and internet involvement have a negative impact on privacy concern. And privacy concern has a negative impact on the frequency of online transactions. Furthermore, internet self-efficacy and internet involvement have a positive impact on the frequency of online transactions. Findings of this study concur with Bandura (1997, 1998), Venkatesh (2000), Zaichkowsky (1985) and Park and Byeong-Joon (2003) that self-efficacy and involvement explain product usage. This study also adds to the literature by showing that internet-self efficacy and internet involvement have an impact on privacy concern.

In contrast to Youn's (2009) finding of no significant impact of privacy self-efficacy on the level of privacy concern, this study found a significant and negative impact of internet self-efficacy on privacy concern. The difference in findings can be attributed to the conceptualization of the constructs. Youn's (2009) focus was on privacy self-efficacy and thus tapped into the peoples' confidence in protecting their privacy from e-marketers' information practices. Furthermore, the level of privacy concern, measured by a single item, reflected concern about the ways companies collect and use personal information on the internet. Our conceptualization of these two constructs was broader. Internet self-efficacy dealt with skills, ability, and confidence in the general use of the internet, not for a specific purpose such as protecting privacy. The underlying assumption was that people with high internet self-efficacy, besides being able to effectively navigate the internet, would know how to protect their privacy. Similarly, privacy concern was conceptualized as reflecting concern about privacy on the internet and protection and security of information on the internet. Both conceptualizations, thus, attempt to capture a more comprehensive interpretation of the two constructs.

Internet self-efficacy was found to play a role in influencing the frequency of online transactions because of the complexity of the internet technology. The human-technology interface brings together, on the one hand, the cognitive dimensions of the user and, on the other hand, the functional features of the internet. On the user side is the belief in the ability to successfully execute different tasks on the internet and on the technology side is the potential to render different types of services. The user has to feel comfortable in using the internet and this feeling of comfort is enhanced with internet involvement. There is thus a significant correlation between internet self-efficacy and internet involvement.

Strategic implications

Revelations about breaches of personal data at businesses come along fairly regularly. Not long ago, data breaches at companies such as Sony, JP Morgan Chase, Best Buy, Target and 17 others, led Marc Rotenberg of Electronic Privacy Information Center to comment that the "recent spate of security breaches is off the charts" (Forden, 2011). And more recently, loss of personal data such as user names, credit and debit card numbers and other personal information at firms such as 7-Eleven, Visa, Carrefour, J.C. Penney, Jet Blue and others resulted in loss of more than hundreds of millions (Booton, 2013). These high-profile breaches have heightened consumers'

awareness of the vulnerability of personal information stored on data servers at businesses. Consumers, therefore, remain justifiably concerned about privacy because they do not know how data on them will be used and by whom. When personal data are compromised, the psychological and financial cost can be severe.

Scott McNeally of Sun Microsystems famously stated that consumers have zero privacy and they should get over it. While his comment did not go over well with privacy watchdogs, it did capture in many ways the reality of today's business. Every time a transaction occurs, data are exchanged. Businesses know what was bought, what price was paid, how much was bought, where it was bought, when it was bought, and, through credit card information and home address, by whom. At a fundamental level, information such as these constitutes the backbone of data-based marketing and e-commerce. Not surprisingly, it also constitutes a bone of contention between businesses and consumers. Businesses need data to understand their consumers and tailor their offerings, but consumers feel that they need to protect their privacy so as not to become a victim of cybercrime. In surveys and ordinary conversations, consumers continue to identify privacy as one of their major concerns when making online purchases. Privacy concern remains at the forefront for many consumers and is reflected in their hesitation to make online purchases.

Findings from this study show the negative impact of privacy concern on online transactions. The findings also show the positive impact of internet self-efficacy and internet involvement on online transactions. These findings have strategic implications as they touch on marketing strategies and consumers' perceptions and behaviors. In recent years, businesses have made significant investments in developing the internet infrastructure to manage online transactions. However, they need to recognize that the return on this investment would depend on how willing consumers are to conduct online transactions. Latest data show that e-commerce sales account for only about 5.8 percent of total sales in the US (US Department of Commerce, 2013). Businesses would therefore need to invest in creating a digital environment that generates trust and facilitates the completion of steps involved in conducting online transactions. Furthermore, they should also create a digital environment that promotes confidence among users and encourages involvement. Thus, from the firm's perspective, engendering trust in online activities should become an integral component of e-business strategy (Urban *et al.*, 2000).

The findings also have implications for managing consumers' web experience. There is significant variation in the frequency with which consumers buy online, some leaning more towards conducting online transactions while others completely abstaining from it. Many consumers shy away from making an online purchase because of the challenges they face in navigating the internet. These issues can be addressed by enhancing internet self-efficacy and internet involvement and lowering privacy concern. Businesses will need to develop appropriate strategies to alleviate privacy concerns and motivate the use of the internet for conducting online transactions. To address privacy concerns, firms would need to publicize the measures they have adopted to ensure privacy and security of personal data. Putting privacy safeguards in place and addressing privacy concerns will improve web usage (Beck, 1998; Kargaonkar and Wolin, 1999; Caudill and Murphy, 2000). A customer centric approach that is transparent in addressing privacy concerns would benefit firms and consumers.

Research directions

This research extends our understanding of the antecedents and consequence of privacy concern. However, there are several issues that need to be addressed to further improve our understanding of privacy. First, the concept of privacy used in this paper did not make a distinction between the types of information that some consumers might consider private that others may not. This is an important distinction which can be explored in future research. Second, the issue of relevancy of privacy may not be an important consideration for some consumers as they might think that in today's information age the notion of privacy is either outdated or irrelevant. This issue may be demographically related and provides another venue for exploring the notion of

privacy further. Third, the issue of trust and privacy may be closely related. Consumers who trust a firm may not be as concerned about privacy as those who do not trust the firm. This important linkage should be explored further, as this has strategic implications for firms.

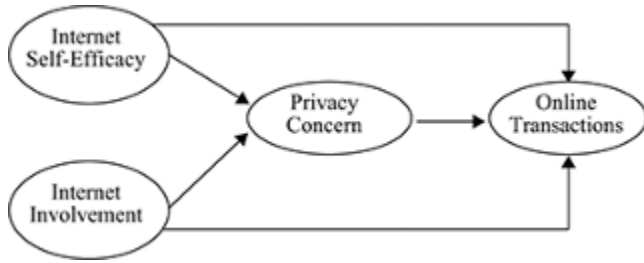


Figure 1 Impact of internet self-efficacy and internet involvement on online transactions

Table I Sample demographics

	%
Age	
Under 19	8.0
20 to 34	14.1
35 to 54	51.9
55 to 64	23.4
65 to 84	2.5
Over 85	0.1
Education	
Less than 9 th grade	0.8
9 th to 12 th grade	1.7
High school	15.9
Some college	30.2
Associate degree	10.9
Bachelor’s degree	23.4
Graduate or professional	17.2
Income	
Under \$14,999	4.9
\$15,000-\$24.99	8.1
\$25,000-\$34,999	8.7
\$35,000-\$49,999	21.5
\$50,000-\$74,999	27.2
\$75,000-\$99,999	13.1
\$100,000-\$149,999	11.4
\$150,000-\$199,999	3.4
More than \$200,000	1.7

Table II Parameters and goodness of fit statistics

Predicted sign	From	To	Parameters estimate	t-value
(-)	Efficacy (ξ_1) →	PrivCon (η_1)	-0.17	-5.98
(+)	Efficacy (ξ_1) →	OnlineTran (η_2)	0.22	6.96
(-)	Involve (ξ_1) →	PrivCon (η_1)	-0.27	-4.10
(+)	Involve (ξ_1) →	OnlineTran (η_2)	0.22	3.18
(-)	PrivCon (η_1) →	OnlineTran (η_2)	-0.24	-6.63
<i>Goodness-of-fit statistics</i>				
Chi-square		844 (p % 0.00) degrees of freedom 146		
Goodness-of-fit index		0.92		
Adjusted goodness-of-fit index		0.90		
Comparative fit index		0.97		
Normed fit index		0.97		
Root mean square error of approximation		0.068		

Notes: Internet self-efficacy (Efficacy); Internet involvement (Involve); Privacy concern (PrivCon); Frequency of online transactions (OnlineTran)

References

- Agarwal, R. , Sambamurthy, V. and Stair, R.M. (2000), "*The evolving relationship between general and specific computer literacy: an empirical assessment*", Information Systems Research, Vol. 11 No. 4, pp. 418-430.
- Ajzen, I. (2002), "*Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior*", Journal of Applied Social Psychology, Vol. 32 No. 4, pp. 665-683.
- Andrews, J.A. , Durvasula, S. and Akhter, S.H. (1990), "*A framework for conceptualizing and measuring the involvement construct in advertising research*", Journal of Advertising, Vol. 19 No. 4, pp. 27-40.
- Arora, R. (1982), "*Validation of an S-O-R model for situation, enduring, and response components of involvement*", Journal of Marketing Research, Vol. 19, pp. 505-516.
- Bachman, K. (2013), ADWEEK, January, p. - .
- Bandura, A. (1997), *Self-efficacy: The Exercise of Control*, W.H. Freeman & Company, New York, NY.
- Bandura, A. (1998), "*Health promotion from the perspective of social cognitive theory*", Psychology and Health, Vol. 13, pp. 623-649.
- Bandura, A. (2001), "*Guide for constructing self-efficacy scales (revised)*", unpublished manuscript.
- Beck, R. (1998), "*World wide web may mean worldwide lawsuits*", Direct Marketing, Vol. 61 No. 3, pp. 60-65.
- Berry, J. (1994), "*Database marketing: a potent new tool for selling*", Business Week, Vol. 5, pp. 56-62.
- Biswas, D. and Biswas, A. (2004), "*The diagnostic role of signals in the context of perceived risks in online shopping: do signals matter more on the web?*", Journal of Interactive Marketing, Vol. 18 No. 3, pp. 30-45.
- Bloch, P.H. (1981), "*An exploration into the scaling of consumers involvement with a product class*", in Monroe, K.B. (Ed.), *Advances in Consumer Research*, Association for Consumer Research, Ann Arbor, MI, pp. 61-65.
- Bloch, P.H. and Richins, M.L. (1983), "*A theoretical model for the study of product importance perception*", Journal of Marketing, Vol. 47, pp. 69-81.
- Booton, J. (2013), "*Major corporations attacked in historic hacking case*", Fox Business, 25 July.
- Bosnjak, M. , Galesic, M. and Tuten, T. (2007), "*Personality determinants of online shopping: explaining online purchase intentions using a hierarchical approach*", Journal of Business Research, Vol. 60, pp. 597-605.
- Cass, A.O. (2000), "*An assessment of consumers product, purchase decision, advertising and consumption involvement in fashion clothing*", Journal of Economic Psychology, Vol. 21, pp. 545-576.
- Caudill, E.M. and Murphy, P.E. (2000), "*Consumer online privacy: legal and ethical issues*", Journal of Public Policy and Marketing, Vol. 19 No. 1, pp. 7-19.
- Clarke, K. and Belk, R. (1979), "*The effects of product involvement and task definition on anticipated consumer effort*", in Wilkie, W.L. (Ed.), *Advances in Consumer Research*, Association for Consumer Research, Ann Arbor, MI, pp. 313-318.
- Clarke, R.A. (1998), "*Information technology and dataveillance*", Communications of the ACM, Vol. 31 No. 5, pp. 498-512.
- Corey, L.G. (1971), "*People who claim to be opinion leaders: identifying their characteristics by self-report*", Journal of Marketing, Vol. 35, pp. 48-53.
- Culnan, M.J. and Armstrong, P.K. (1999), "*Information privacy concern, procedural fairness, and impersonal trust: an empirical investigation*", Organization Science, Vol. 10 No. 1, pp. 104-115.
- Day, G.S. (1970), *Buyer Attitudes and Brand Choice*, Free Press, New York, NY.
- Dean, F.P. , Podd, J. and Henderson, R.D. (1998), "*Relationship between self-report and log data estimates of information system usage*", Computers in Human Behavior, Vol. 14, pp. 621-636.
- Easten, M.S. and LaRose, R. (2000), "*Internet self-efficacy and the psychology of the digital divide*", Journal of Computer Mediated Communication, Vol. 6 No. 1.
- Ellen, P.S. , Bearden, W.O. and Sharma, S. (1991), "*Resistance to technological innovations: an examination of the role of self-efficacy and performance satisfaction*", Journal of the Academy of Marketing Science, Vol. 19 No. 4, pp. 297-307.
- Feistel, H. (1973), "*Cryptography and computer privacy*", Scientific American, May.
- Forden, S. (2011), "*Online privacy: can the US get its act together*", Bloomberg Businessweek, 12 May.

- Giovannelli, M. (2003), "*Relationship between reflective disposition toward teaching and effective teaching*", *Journal of Educational Research*, Vol. 96 No. 5, pp. 293-309.
- Hair, J.H. , Black, W. , Babin, B. , Anderson, R. and Tatham, R. (2006), *Multivariate Data Analysis*, 6th ed., Prentice Hall, Upper Saddle River, NJ.
- Han, P. and Maclaurin, A. (2002), "*Do consumers really care about online privacy?*", *Marketing Management*, Vol. 11 No. 1, pp. 35-38.
- Hayduk, L.A. (1988), *Structural Equation Modeling with LISREL: Essentials and Advances*, John Hopkins, Baltimore, MD.
- Hill, T. , Smith, N.D. and Mann, M. (1985), "*Communicating innovations: convincing computer phobics to adopt innovative techniques*", in Lutz, R. (Ed.), *Advances in Consumer Research*, Vol. 13, Association for Consumer Research, Provo, UT, pp. 419-422.
- Houston, M.J. and Rothschild, M.L. (1978), "*Conceptual and methodological perspectives on involvement*", in Jain, S.C. (Ed.), *Educators' Proceedings*, American Marketing Association, Chicago, IL, pp. 184-187.
- Jacoby, J. (1971), "*A model of multi-brand loyalty*", *Journal of Advertising Research*, Vol. 11, pp. 25-31.
- Jacoby, J.R. , Chestnut, W. and Fischer, W.A. (1978), "*A behavioral process approach to information acquisition in nondurable purchasing*", *Journal of Marketing Research*, Vol. 15, pp. 532-544.
- Joo, Y. , Bong, M. and Ha-Jeen, C. (2000), "*Self-efficacy for self-regulated learning, academic self-efficacy, and internet self-efficacy in web-based instruction*", *Educational Technology Research and Development*, Vol. 48 No. 2, pp. 5-17.
- Joreskog, K. and Sorbom, D. (1996), *LISREL 8: Users Reference Guide*, SSI Scientific Software International, Chicago, IL.
- Kargaonkar, P.A. and Wolin, L. (1999), "*A multivariate analysis of web usage*", *Journal of Advertising Research*, pp. 53-68, March-April.
- Klem, L. (2000), "*Structural equation modeling*", in Grimm, L.G. and Yarnold, P.R. (Eds), *Reading and Understanding More Multivariate Statistics*, American Psychological Association, Washington, DC, pp. 227-259.
- Lastovicka, J.L. and Gardner, D.M. (1979), "*Components of involvement*", in Maloney, J.C. and Silverman, B. (Eds), *Attitude Research Plays for High Stakes*, American Marketing Association, Chicago, IL, pp. 53-73.
- Locke, E.A. and Latham, G.P. (2002), "*Building a practically useful theory of goal setting and motivation*", *American Psychologist*, Vol. 57, pp. 705-717.
- McIntosh, N. (2002), "*The widening digital divide*", *The Guardian Unlimited*, p. - , July.
- Ma, Q. and Liu, L. (2005), "*The role of internet self-efficacy in the acceptance of web-based electronic medical records*", *Journal of Organizational and End User Computing*, Vol. 17 No. 1, pp. 38-57.
- Maddux, J.E. , Norton, L.W. and Stoltenberg, C.D. (1986), "*Self-efficacy expectancy, outcome expectancy and outcome value: relative effects on behavioral intentions*", *Journal of Personality and Social Psychology*, Vol. 51 No. 4, pp. 783-789.
- Milne, G.R. and Boza, M. (1999), "*Trust and concern in consumers' perceptions of marketing information management practices*", *Journal of Interactive Marketing*, Vol. 13 No. 1, pp. 5-24.
- Milne, G.R. and Gordon, M.E. (1993), "*Direct mail privacy-efficiency trade-offs within an implied social contract framework*", *Journal of Public Policy Marketing*, Vol. 12 No. 2, pp. 206-215.
- Mukhopahyay, A. and Johar, G.V. (2005), "*Where there is a will, is there a way? Effects of lay theories of self-control on setting and keeping resolutions*", *Journal of Consumer Research*, Vol. 31 No. 4, pp. 779-786.
- Nahl, D. (1996), "*Affective monitoring of internet learners: perceived self-efficacy and success*", *Proceedings of the 59th ASIS Annual Meeting*, Vol. 33, pp. 100-109.
- Nahl, D. and Meer, M.P. (1997), "*User-centered assessment of two web browsers: errors, perceived self-efficacy, and success*", *Proceedings of the 60th ASIS Annual Meeting*, Vol. 34, pp. 89-97.
- Park, C. and Byeong-Joon, M. (2003), "*The relationship between product involvement and product knowledge: moderating roles of product type and product knowledge type*", *Psychology & Marketing*, Vol. 20 No. 11, pp. 977-997.

- Peterson, T.O. and Arnn, R.B. (2005), "*Self-efficacy: the foundation of human performance*", Performance Improvement Quarterly, Vol. 18 No. 2, pp. 5-18.
- Phelps, J.E. , D'Souza, G. and Nowak, G.J. (2001), "*Antecedents and consequences of consumer privacy concern: an empirical investigation*", Journal of Interactive Marketing, Vol. 15 No. 4, pp. 2-17.
- Ram, S. and Jung, H-S. (1994), "*Innovativeness in product usage: a comparison of early adopters and early majority*", Psychology & Marketing, Vol. 11 No. 1, pp. 57-67.
- Rothschild, M.L. (1975), "*Involvement as a determinant of decision making styles*", in Mazze, E.M. (Ed.), Combined Proceedings, American Marketing Association, Chicago, IL, pp. 216-220.
- Selzer, L.F. (1983), "*Influencing the 'shape' of resistance: an experimental exploration of paradoxical directives and psychological resistance*", Basic and Applied Social Psychology, Vol. 4 No. 1, pp. 47-71.
- Sherif, C.W. (1980), "*Social values, attitudes and involvement of the self*", in Page, M. (Ed.), Nebraska Symposium on Motivation, University of Nebraska Press, Lincoln, NE, pp. 1-64.
- Sherif, M. and Cantril, H. (1947), *The Psychology of Ego-involvement*, Wiley, New York, NY.
- Stajkovic, A.D. and Luthans, F. (1998), "*Social cognitive theory and self-efficacy: going beyond traditional motivational and behavioral approaches*", Organizational Dynamics, Vol. 26 No. 4, pp. 62-74.
- Summers, J.O. (1970), "*The identity of women's clothing fashion opinion leaders*", Journal of Marketing Research, Vol. 7, pp. 178-185.
- Tode, C. (2013), "*User concern over mobile privacy is growing*", Mobile Marketer, January 28.
- Tyson, C.B. and Snyder, L.B. (1999), "*The impact of direct mail video*", Public Relations Quarterly, pp. 28-32, Spring.
- Urban, G.L. , Sultan, F. and Qualls, W.J. (2000), "*Placing trust at the center of your internet strategy*", MIT Sloan Management Review, Vol. 42 No. 1, pp. 39-48.
- US Department of Commerce (2013), US Census Bureau News, Washington, DC, 15 August.
- Venkatesh, V. (2000), "*Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model*", Information Systems Research, Vol. 11 No. 4, pp. 342-365.
- Webster, J. (1998), "*Desktop videoconferencing: experiences of complete users, wary users, and non-users*", MIS Quarterly, Vol. 22 No. 3, pp. 257-286.
- Yang, T. (2012), "*The decision behavior of Facebook users*", The Journal of Computer Information System, Vol. 52 No. 3, pp. 50-59.
- Youn, S. (2009), "*Determinants of online privacy concern and its influence on privacy protection behaviors among young adolescents*", The Journal of Consumer Affairs, Vol. 43 No. 3, pp. 389-418.
- Zaichkowsky, J.L. (1985), "*Measuring involvement construct*", Journal of Consumer Research, Vol. 12, pp. 341-352.
- Zaichkowsky, J.L. (1994), "*Research notes: The personal involvement inventory: reduction, revision, and application to advertising*", Journal of Advertising, Vol. 23 No. 4, pp. 59-70.