

DOES TRUST REDUCE CONCERN FOR INFORMATION PRIVACY IN E-COMMERCE?

J.T. Shim

University of Central Florida
jtshim@bus.ucf.edu

Craig Van Slyke

University of Central Florida
craig.vanslyke@bus.ucf.edu

James J. Jiang

University of Central Florida
jjiang@bus.ucf.edu

Richard D. Johnson

University of Central Florida
richard.johnson@bus.ucf.edu

Abstract

Internet commerce continues to grow rapidly and is expected to exceed \$5 trillion in 2005. Nevertheless concern for information privacy has been identified as a major consideration constraining many from internet consumerism. Trust has also been identified as an antecedent to willingness/intent to transact, buy or purchase.

This research seeks to specify and support a model that involves additional constructs such as familiarity, risk, quality of website, gender, personal innovativeness, discretionary income, age, and other factors in order to identify what factors and/or interactions are significant in determining whether a prospect intends to part with funds and become a customer. Data to be gathered with online survey and analyzed using regression.

Keywords: Trust, concern for information privacy, willingness to transact, e-commerce

Introduction

Internet commerce continues to grow rapidly and is expected to exceed \$5 trillion in 2005. Nevertheless privacy concerns have been identified as a major consumer concern facing internet users. Trust has also been identified as an antecedent to willingness/intent to transact, buy or purchase.

While there are some definitional difficulties we examine a model that focuses on the effect of trust on concern for information privacy and their effect on willingness to transact.

Background

Some researchers contend that trust research in e-commerce is still in its infancy, which poses difficulties in gaining a clear understanding of its scale and scope (Papadopoulou et al 2001). Repeatedly, it has been suggested that previous work in the trust and/or privacy arena be reexamined and revalidated (Bhattacharya, Devinney & Pillutla 1998; Kimery & McCord 2002; Smith, Milberg & Burke 1996). This research builds on the work of others and intends to explore a new relationship between trust and concern for information privacy (CFIP).

Milne and Boza's (1999) concluded that "improvement of trust is more effective than efforts to reduce concern" (5). This may be a result of the definition of trust they used—"the expectancy of a customer to rely upon database marketers to treat the consumer's personal information fairly" (8) which overlaps with CFIP.

For this study we define concern for information privacy as concern for "the ability of the individual to personally control information about oneself" (Stone et al. 1983). CFIP could be defined in the context of interaction with another entity, whether person, organization or website.

Trust is "willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform [or not perform] a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer, Davis & Schoorman 1995, 712).

Trust has been established to be an a key factor to the success of e-commerce (Gefen 2000, Jarvenpaa et al 2000, Van Slyke, et al 2002). While the sales force often plays a key role in interfacing with customers and implementing marketing strategy by "facilitating and developing customer trust" (Doney & Canon 1997, 35), trust assumes a more crucial role in an e-commerce context where a sales force is not deployed. Trust is important in an exchange because it leads to "constructive dialogue and cooperative problem solving" (Schurr & Ozanne 1985, 940).

The importance of trust in exchange transactions is made clear in the marketing literature. Ganesan (1994) and Doney and Cannon (1997) each found that "trust is a key determinant of a successful buyer-seller relationship." Additionally, Morgan and Hunt (1994) found that "trust influenced the commitment of the parties to a relationship." Perceptions of trust are also found to influence transactions in an online environment. Jarvenpaa et al. (2000) found that "store trustworthiness and perception of risk influenced the willingness to purchase" (Odom, Kumar & Saunders 2002, 232).

Alternatively, many researchers propose that concern for information privacy currently stifles e-commerce. Businesses anticipate that trillions more dollars of e-commerce can be conducted if customers' concerns, including privacy, can be adequately addressed (Odom, et al 2002). Completing a transaction without disclosing some personal data is very difficult, if not impossible, even if that disclosure is made to a trusted third party. Therefore privacy is a necessary concern in e-commerce. (Ackerman et al. 1999).

This research hypothesizes that trust is partially and possibly even fully mediated by CFIP. If empirical findings support this hypothesis, noteworthy implications for both research and practice would ensue—suggesting a reevaluation of research done with previous conceptualizations and a realignment of marketing strategies.

Risk is required for trust

While this research focuses on trust and CFIP, a serious discussion of trust must address risk. Risk is "a characteristic of decisions that is defined as the extent to which there is uncertainty about whether potentially significant and/or disappointing outcomes of decisions will be realized" (Sitkin & Pablo 1992). Without risk or uncertainty there would be no need for trust (Lewis & Weigert 1985; Schlenker et al. 1973). Thus, most would agree that trust is "intimately associated with risk and risk taking" (Coleman 1990) because trust and risk can be thought of as "mirror images" of each other (Das & Tang 1998).

In summary, this research views trust more broadly "as a willingness to depend on a vendor to deliver on commitments" (McKnight, Choudhury & Kacmar, 2002a, 335), which is not the same as the more narrow view of "trust as a belief that the vendor uses consumer data ethically" (McKnight et al. 2002a, 335).

Research model

The proposed model (Figure 1) modifies Bhattacharjee's (2002) scale development model. Bhattacharjee's model was based on a combination of Fishbein and Ajzen's (1975) social psychology theory for the connection between trust and willingness to transact, and the trust literature (Gefen 2000, Luhmann 1973/1979) for the connection between familiarity and trust.

The model used by Bhattacharjee (2002) excludes antecedents, such as propensity to trust, which were included in Gefen's (2000) model, as well as other antecedents and consequents of trust. These exclusions were undertaken since the purpose was to test the proposed test scale and not to develop a complete nomological model. Similarly, the proposed model (Figure 1) does not purport to be a complete nomological model, but one intended to test the linkage between trust and willingness to transact mediated by CFIP.

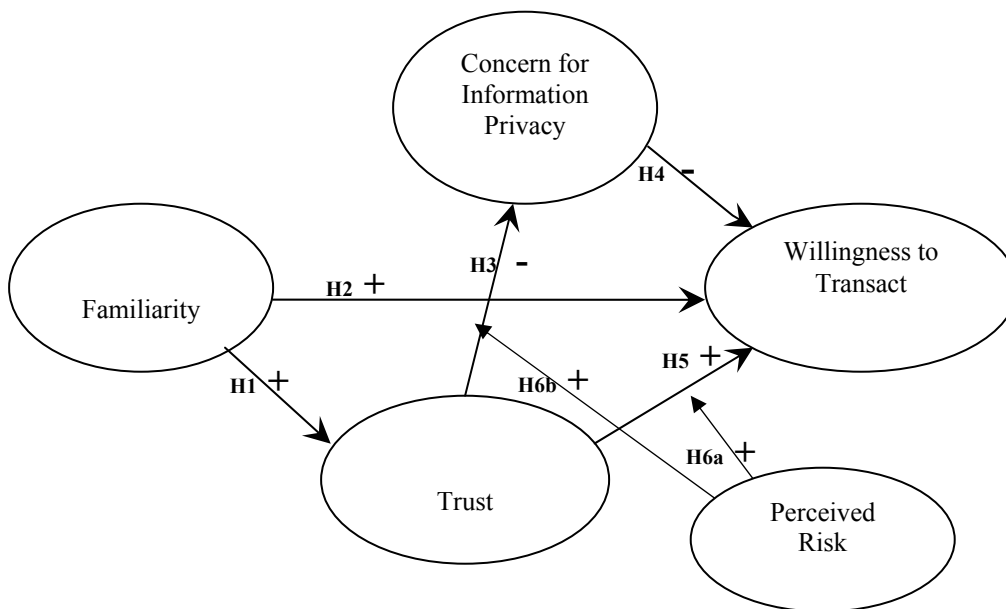


Figure 1—Proposed Model

This research expects that trust will reduce CFIP and will lead to a willingness to transact in similar (but not identical) fashion as Belanger et al. (2002) found, whereby pleasure features take precedence over privacy and security features when considering intention to purchase.

The definition of concern for information privacy used is consistent with the definition used by the CFIP instrument developed by Smith et al. (1995). The definition of trust is used because this was the one utilized in the model by Bhattacharjee that is being modified (Bhattacharjee 2002). It is used despite its failure to distinguish between trust and trustworthiness (Barney & Hansen 1994).

While intuitively one may expect CFIP to affect trust, research indicates the reverse or an interactive effect. Culnan and Armstrong (1999) and Luo (2002) indicate that increasing perceptions of trust will influence the privacy calculus to permit the customer to determine that the benefits of disclosure of personal information outweigh the risks.

McKnight and Chervany (2002), in their development of an interdisciplinary conceptual typology of trust, model trust as an antecedent of information sharing, which suggests a reduced CFIP. In some cases one may appropriately interpret information sharing as evidence of reduced CFIP, yet in other cases it may not be.

Trusting and making oneself vulnerable implies risk. Although McKnight, Choudhury and Kacmar (2002b) show a direct relation between Risk and Behavioral Intentions, this research maintains the Mayer, Davis and Schoorman's (1995) posture

that no scholarly consensus has been reached as to its position in a model; risk's inclusion is important. Mayer et al. suggest by the placement in their model that it would moderate the effects of trust. The proposed model includes perceived risk moderating the two effects of trust—willingness to transact and concern for information privacy.

Hypothesis 1: Higher levels of familiarity will be associated with higher levels of trust.

Familiarity is a widely recognized predictor of trust (Bhattacharjee 2002). An antecedent to trust in Luhmann's (1973/1979) theory of *Trust and Power* is familiarity. Familiarity, according to this theory, is a prerequisite of trust because it creates a framework and understanding of the environment and the trusted party within which the expectations of trust can be explicated (Gefen 2000).

Hypothesis 2: Higher levels of familiarity will be associated with higher levels of willingness to transact.

Prior successful transactions with an online firm may motivate users to reflexively engage in additional purchases with that firm, without making a conscious assessment of the trustee's ability, benevolence and integrity. Therefore, this association is not stated as a formal hypothesis, as it does not directly involve the constructs of interest (Bhattacharjee 2002).

Habit diminishes the conscious attention with which our acts are performed (James 1952). Our established habits make literal pathways through the nervous mechanism of the body. Thus, when one yields willingly and readily to the impulse to perform a certain act, the body will respond a little more quickly and easily the next time that same impulse is experienced. The formation of habits represents a source of great economy to both mind and body (Sadler 1952), which allows humans to function daily without taxing the cognitive capabilities with every routine task.

One's past purchase behavior will also play a role when a person is confronted with a new purchase decision (Guadagni & Little 1983). Quite simply, past purchase experience, a result of past attitudes and beliefs, will influence future purchase decision (Phelps et al. 2001).

Hypothesis 3: Higher levels of trust will be associated with lower levels of concern for information privacy.

According to Gibb's T-Group Theory (Gibb 1964), one's inner state of trust affects and transforms one's behavior through information, influence and control (Zand 1972). While industrial and organizational settings have generated the theory, it has derivations, supporting empirical studies and applications to problems in teaching, child rearing and management (Gibb 1964) besides applicability in the e-commerce setting.

This research suggests that trust will reduce CFIP, a concern that is demonstrated by people hiding their information or providing false information. An antecedent or current reduction of distrusts and fears contributes to a free flow of data. Without trust, a kind of datalessness emerges where people retain personal data that prevents others from seeing or using that data (Gibb 1964). The hiding of information indicates a concern for information privacy regardless of what those concerns might be.

Hypothesis 4: Higher levels of concern for information privacy will be associated with lower levels of willingness to transact.

A *Business Week* (2000) Harris Poll found that 41 percent of online shoppers were very concerned over the use of personal information. Whether real or perceived the concerns of online consumers influences their decision process (Odom et al. 2002).

Privacy concerns have been shown to be negatively related to purchase behavior. Phelps et al. (2001) assert that although this has been an *a priori* assumption, establishing the link as an empirical fact is an important finding—despite the lack of application of theoretical guidance in indicating the direction(s) of influence.

Hypothesis 5: Higher levels of trust will be associated with higher levels of willingness to transact.

Sellers use stimulants of trust (e.g. brand names, logos) and explicit guarantees to encourage transactions (Schurr & Ozanne 1985), and causality between beliefs and intentions are derived from Fishbein and Ajzen’s typology of beliefs, attitude and intention (Bhattacharjee 2002). Although actual purchase behavior is of keen interest, it is impractical to experimentally study this. Thus, willingness to transact is used as an acceptable proxy (Kimery & McCord 2002; McKnight et al. 2002b).

Hypothesis 6a: Perceived risk will positively affect the influence of trust on willingness to transact.

Hypothesis 6b: Perceived risk will negatively affect the influence of trust on concern for information privacy.

As discussed in the literature review, without risk there is no need nor opportunity to trust. The greater the risk, the more important is the role of trust (Luhmann 1973/1979). Therefore perceived risk allows for the effects of trust to be accentuated through riskier intents, such as higher levels of willingness to transact and lower concerns for information privacy (Mayer et al. 1995).

Methodology

Participants will be students of university courses invited by their instructors to participate in an on-line survey of 70± items in the context of evaluating a commercial website. The data will be analyzed using regression.

Measurement instrument

The measurement instrument includes multi-item scales adapted from prior research with the intention of measuring the constructs of interest and control variables. The scales were primarily seven-point Likert-type scales. Although the online survey required a response to questions before proceeding, an option provided was “I choose not to respond to this question.” Qualitative information may be provided by respondents in the open-ended comment section near the end of the survey. Table 1 provides an overview of the items included in the instrument.

Table 1. Overview of Quantitative Survey Items

| Scale | Source |
|---------------------------------|----------------------------------|
| <i>Research Model Variables</i> | |
| Trust | Bhattacharjee (2002) |
| Concern for Information Privacy | Smith, Milberg, and Burke (1996) |
| Familiarity | Gefen (2000). |
| Risk Perception | Jarvenpaa (2000) |
| Willingness to Transact | Jarvenpaa et al (2000) |
| <i>Control Variables</i> | |
| Personal Innovativeness | McKnight et al. (2002a) |
| General Web Experience | McKnight et al. (2002a) |
| Perceived Site Quality | McKnight et al. (2002a) |
| Discretionary income | O’Guinn and Wells (1989) |
| Age | Direct Questioning |
| Gender | Direct Questioning |
| Class standing | Direct Questioning |
| Racial/ethnic background | Direct Questioning |

Data analysis

Regression will be utilized after the data is collected to test the hypothesis. Items from Table 1 will be used as control variables.

Potential Contributions

CFIP may be found to partially moderate trust. The demonstration of such a relationship may warrant a shift in marketing strategy. Milne and Boza (1999) indicate that the strategies for building trust are very different from the strategies to reduce concern for information privacy: in a trust-building mode, disclosure of information practices and opt-out options tend to be surreptitious and in fine print, whereas in trust-building mode communication is informative and benefit driven. Another strategy for reducing CFIP is procedural fairness (Culnan & Armstrong 1999).

If this research finds strong support for hypothesis 3, it would suggest that statements like the following three overstate the importance of trust: (1) "Trust is a key determinant of a successful buyer-seller relationship" (Odom et al 2002, 232). (2) Without trust, consumers are not willing to provide information necessary to complete transactions (Hoffman et al 1999b): "no private information will be given, and no sale will be initiated" (Belanger et al. 2002, 253) nor consummated. Worse yet, false or inaccurate information could be provided which makes the activities of marketers inefficient (Sheehan & Hoy 1999) and perpetuates errors as databases proliferate. (3) Many consumers hesitate to engage in the behaviors necessary for the widespread diffusion of e-commerce, such as sharing personal information with e-vendors and making purchases over the web, due to lack of trust (McKnight 2002b).

Conclusion

The model of trust and concern for information privacy in an e-commerce setting offered in this research is important to explore in order to confirm or correct the allocation of resources in e-commerce and to explore the interaction between the two constructs of interest.

References

- Ackerman, Mark S., Cranor, L.F., & Reagle, J. (1999). Privacy in e-commerce: examining user scenarios and privacy preferences. Proceedings of the first ACM conference on Electronic commerce, Denver, Colorado. 1-8.
- Barney, J.B., & Hansen, M.H. (1994). Trustworthiness as a source of competitive advantage, *Strategic Management Journal*, 15, 175-190.
- Belanger, F., Hiller, J.S., & Smith, W.J. (2002). Trustworthiness in Electronic Commerce: The Role of Privacy, Security, and Site Attributes. *Journal of Information Systems* 11, 245-270.
- Bhattacharya, R., Devinney, T.M., & Pillutla, M.M. (1988). A formal model of trust based on outcomes. *Academy of Management Review*, 23(3), 459-472.
- Bhattacharjee, A. (2002). Individual Trust in Online Firms: Scale Development and Initial Test. *Journal of Management Information Systems*, 19(3), 211-241.
- Coleman, J.S. (1909). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Culnan, M.J., & Armstrong, P.K. (1999). Information privacy concerns, procedural fairness, and impersonal trust: An empirical investigation. *Organization Science*, 10(1), 104-115.
- Das, T.K., & Teng, B-S. (1998). *The risk of trust: a conceptual analysis*. Paper presented at the annual meeting of the Academy of Management, San Diego, CA.
- Doney, P.M., & Cannon, J.P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing* 61, 35-51.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Boston: Addison Wesley.
- Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing*, 58, 1-19.
- Gefen, D. (2000). E-Commerce: the role of familiarity and trust. *Omega: the International Journal of Management Science*, 28, 725-737.
- Gibb, J.R. (1964). *Climate for trust formation*. In Leland P. Bradford, Jack R. Gibb and Kenneth D. Benne (eds.), T-Group Theory and Laboratory Method. New York: John Wiley, 279-301.
- Gibb, J.R. (1964). *The present state of T-Group theory*. In Leland P. Bradford, Jack R. Gibb and Kenneth D. Benne (eds.), T-Group Theory and Laboratory Method. New York: John Wiley, 168-189.
- James, W. (1952). The principles of psychology. In *Great books of the Western World* (Vol 53). Chicago: Encyclopaedia Britannica.
- Jarvenpaa, S.L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an Internet store. *Information Technology and Management*, 1(1-2), 45-71.
- Kimery, K.M., & McCord, M. (2002). Third-party assurances: mapping the road to trust in e-retailing. *Journal of Information Technology Theory and Application (JITTA)*, 4(2), 63-82.
- Lewis, D.J., & Weigert, A. (1985). Trust as a social reality. *Social Forces*, 63, 967-985.
- Luhmann, N. *Trust and Power*. (1973/1979). Translated by Howard Davis, John Raffan and Kathryn Rooney. Avon, UK: Pitman Press.
- Luo, X. (2002). Trust production and privacy concerns on the Internet. A framework based on relationship marketing and social exchange theory. *Industrial Marketing Management* 31, 111-118.
- Proceedings of the 7th Annual Conference of the Southern Association for Information Systems*

- Mayer, R.C., Davis, J.H., & Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
- McKnight, D.H., & Chervany, N.L. (2002). What trust means in e-commerce customer relationships: an interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(2), 35-59.
- McKnight, D.H., Choudhury, V., & Kacmar, C. (2002a). Developing and validating trust measures for e-commerce: an integrative typology. *Information Systems Research*, 11(3), 334-359.
- McKnight, D.H., Choudhury, V., & Kacmar, C. (2002b). The impact of initial consumer trust on intentions to transact with a website: a trust building model. *Journal of Strategic Information Systems* 11, 297-323.
- Milne, G.R., & Boza, M-E. (1999). Trust and concern in consumers' perceptions of marketing information management. *Journal of Interactive Marketing*, 13(1), 5-24.
- Morgan, R.M. & Hunt, S.D. (1994, July). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58, 20-39.
- Odom, M.D., Kumar, A., & Saunders, L. (2002). Web assurance seals: how and why they influence consumers' Decisions, *Journal of Information Systems*, 16(2), 231-250.
- Papadopoulou, P., Andreas, A., Kenellis, P., & Martakos D. (2001). Trust and relationship building in electronic commerce. *Internet Research: Electronic Networking Applications and Policy*, 11(4), 322-332.
- Phelps, J., D'Souza, G., & Nowak, G.J. (2001). Antecedents and consequences of consumer privacy concerns: an empirical investigation. *Journal of Interactive Marketing* 15(4), 2-17.
- Sadler, William S. (1952). *Practice of Psychiatry*. St. Louis: The C.V. Mosby Company.
- Schlenker, B.R., Helm, R., & Tedeschi, J.T. (1973). The effects of personality and situational variables on behavioral trust. *Journal of Personality and Social Psychology*, 25, 419-427.
- Schurr, P.H., & Ozanne, J.L. (1985, March). Influences on exchange processes: buyers' preconceptions of a seller's trustworthiness and bargaining toughness. *Journal of Consumer Research*, 11, 939-53.
- Sheehan, K.B., & Hoy, M.G. (1999). Flaming, complaining, abstaining: how online users respond to privacy concerns. *Journal of Advertising*, 28(3), 37-51.
- Sitkin, S.B, & Pablo A.L. (1992). Reconceptualizing the determinants of risk behavior. *Academy of Management Review*, 17(1), 9-38.
- Smith, H.J., Milberg S.J., & Burke, S.J. (1996). Information privacy: measuring individuals' concerns about organizational practices, *MIS Quarterly*, 20(2), 167-196.
- Stone, E.F., Gardner, D.G., Guetal, H.G., & McClure, S. (1983). A field experiment comparing information-privacy values, beliefs, and attitudes across several types of organizations. *Journal of Applied Psychology*, 68(3), 459-468.
- Van Slyke, C, Comunale, C.L., & Belanger, F. (2002). Gender differences in perceptions of web-based shopping. *Communications of the ACM*, 45(7), 82-86.
- Zand, D.E. (1972) Trust and managerial problem solving. *Administrative Science Quarterly*, 17, 229-239.