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Ananth Chiravuri
University of Wisconsin-Milwaukee

Derek Nazareth
University of Wisconsin-Milwaukee

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CONSUMER TRUST IN ELECTRONIC COMMERCE: AN ALTERNATIVE FRAMEWORK USING TECHNOLOGY ACCEPTANCE

Ananth Chiravuri

University of Wisconsin-Milwaukee
ananthc2@uwm.edu

Derek Nazareth

University of Wisconsin-Milwaukee
derek@uwm.edu

Abstract

The Internet continues to grow at a substantial rate, with estimates for online persons reaching 407 million by November 2000 (Nua 2001). Despite this growth, business to consumer commerce still experiences challenges on many fronts. Several studies have identified trust as a major concern for consumers to buy online. This paper examines trust and its antecedents, and presents an alternative framework, using the Technology Acceptance Model (TAM), of the consumer's usage of the Internet for e-commerce.

Introduction

Business-to-consumer commerce over the Internet continues to face multiple challenges, despite the immense popularity and substantial growth in the Internet. Recent failures of ventures aimed at direct selling to consumers using the Internet as the sole distribution channel, e.g. etoys.com, have dampened the outlook for other such ventures, as reflected by their dwindling stock prices. One principal reason for this is the fact that many of these ventures are finding it difficult to achieve projected growth. This is in part explained by the tendency of consumers critically evaluating their on-line purchases. Several issues crop up in these evaluations, including availability of current products (not just overstocks and prior years' models), price, quick delivery, problem-free returns, post-purchase service, among others. Other factors that have been a recurrent theme in this introspection center on issues like security, privacy, and the like. Companies are finding it hard to persuade additional consumers to buy on-line despite the advantages of convenience, choice, and price. It is clear that unless issues like consumer protection, privacy, security, and the like, are effectively addressed, on-line consumer sales will continue to stagnate. This paper aims to contribute to the existing research by attempting to understand the usage process from the critical perspective of trust.

The Meaning of Trust

The benefits of trust have been widely recognized. Trust makes cooperative endeavors happen (Arrow 1974; Deutsch 1973; Gambetta 1988). Trust is a key to positive relationships in various settings (Fox 1974; Lewis and Wiegert 1985a) and becomes more central and critical during periods of uncertainty due to organizational crisis (Mishra 1996; Weick and Roberts 1993). However there is little consensus on what trust means (Kee and Knox 1970; Taylor 1989; Yamagishi and Yamagishi 1994). Too often, it has been addressed without the help of solid a-priori conceptualizations (McKnight and Chervany 2000). Trust is described as a risky advance concession in the hope or expectation of a positive outcome (Luhmann 1988). Trust has also been characterized as "the willingness of a party to be vulnerable to the actions of another party based on the expectations that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al. 1995). This definition will be used to develop the model.

Trust in the E-Commerce Marketplace

There have been many studies on understanding trust and its antecedents in the context of e-commerce. Quelch and Klein (1996) speculate that in the early stages of the Internet development, trust is a critical factor in stimulating purchases over the Internet.

Doney and Cannon (1997) label trust as an order qualifier for purchase decisions, i.e. in order for a consumer to place an order the consumer must trust the merchant first. Gefen (2000) concludes that both trust and familiarity influence two distinct aspects of e-commerce: *inquiry and purchase*, and are especially strong on peoples intention to purchase. The study also points out that trust and familiarity are differently distinct constructs. Jarvenpaa et al. (1999) conclude that a perceived merchant reputation had a significant effect on a consumers trust than the merchant size and point out that no strong cultural effects were found regarding the antecedents of trust. The results from their study also tentatively suggest that greater experience with the web is associated with lower trust and higher risk in a particular merchant. Some studies looked at a framework to build and enhance consumer trust using Trusted Third Parties (Ba et al. 1998). Palmer et al. (2000) examined the use and prominence of Trusted Third Parties and privacy factors and concluded that these two elements are complementary.

Three major antecedent factors of trust in the e-commerce arena are information quality, web interface design, and company reputation (Fung and Lee 1999). Einwiller et al. (2000) introduce “trust signals” as antecedents to consumer trust in Internet businesses. Jarvenpaa et al. (1999) suggest looking at factors other than size and reputation and concludes that design, ease of use, aesthetics and native language might also have an impact. The study also suggests that usability along with aesthetics and language might affect perceptions and inferences about other site characteristics such as trust.

Technology Acceptance and Trust

It is interesting to note that none of these studies have employed the technology acceptance model (TAM) (Davis 1989) as a framework to explain consumer acceptance and usage of the internet as a medium to conduct business. This is surprising, as numerous studies have employed the model and its revisions (Davis et al. 1989; Szanja 1996) to explain the acceptance and usage of information technology in discretionary-use in contexts. The objective of this paper is to present an alternative framework of the consumer’s usage of the Internet for e-commerce, using TAM and more critically, trust. This model also attempts to identify some of the antecedents of trust in the e-commerce context.

A study to identify antecedents to web ease of use and usefulness (Lederer et al. 2000) concluded that several antecedents predicted ease of use, including ease of understanding and ease of finding. Another study by Fung and Lee (1999) explored the concept of EC-trust, and identified company reputation, and quality of experience as antecedent factors to trust. We use these antecedents from the models presented above and present a framework to explain consumer’s intention to use the Internet for ecommerce. The antecedents of trust include those identified in previous studies such as company reputation (Jarvenpaa et al. 1999), factual signals and heuristic cues (Einwiller et al. 2000), and familiarity (Gefen 2000). The proposed research model is presented in Figure 1.

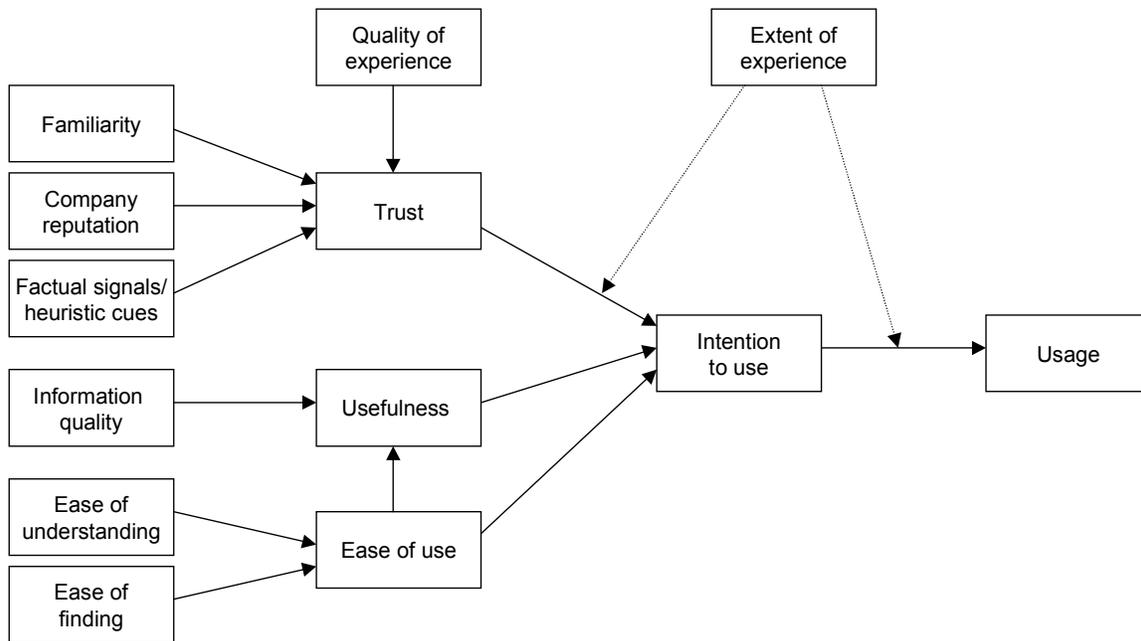


Figure 1. Technology Acceptance and Trust Model

Several propositions can be formulated to address the role of trust in the context of technology acceptance. These include:

Proposition 1: Trust will positively influence the intention to use (purchase)

Proposition 2. The quality of prior experience will positively influence trust.

Proposition 3. The extent of prior experience will moderate the relationship between trust and intention to use.

Proposed Research Methodology

This research employs existing constructs, albeit from different research streams. The instrument will be based on measures adopted in prior research, as adapted to the e-commerce trust context. Several rounds of pretesting of this instrument are envisioned, using independent experts, to assess face validity and content validity. In an effort to ensure variance in the data, the sample for this research would employ a combination of e-commerce buyers and non-buyers. The sample size would be decided after taking into account the power, the effect size and the alpha level. Multitrait-Multimethod (MTMM) matrix will be used to check for discriminant and predictive validity and thus investigate construct validity (Campbell and Fiske, 1959). The correlation matrix will then be subjected to confirmatory factor analysis. In the CFA approach, factors defined by multiple measures of the same trait reflect construct validity of the measures, while method effects are indicated by the factors based on different trait measures with the same instrument. Structural equation modeling would be used to test the theoretical model.

Implications and Conclusions

This research extends the technology acceptance model to incorporate trust as a key construct for discretionary-use information technology. Much of the work on technology acceptance centers on the use of technology in the work setting. This research extends it to the personal context. In an effort to better understand user behavior in a situation where risks are non-trivial, the role of trust is introduced. A better understanding of trust, particularly in the e-commerce arena, is necessary to understand and predict the purchase decisions of individuals.

While there are various models explaining trust and its antecedents, none of them use TAM and trust to explain intention to use leading to usage. This study highlights the critical role of trust and the TAM to explain intention to use. The antecedents of trust, usefulness and ease of use are identified. The study also introduces the quality of prior experience as an antecedent to trust, and the moderating role of the quantity of personal experience in shaping the relationship between trust and the intention to use the technology.

References

References are available at <http://www.uwm.edu/~derek/amcis2001/TrustReferences.html>.