

THE INTERTWINED EFFECT OF PERCEIVED USEFULNESS, PERCEIVED EASE OF USE AND TRUST IN A WEBSITE ON THE INTENTION TO RETURN

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ABSTRACT

Online information enquiry and purchasing products or services imply both the usage of an information technology (the internet) and an engagement in a commercial relationship with a cyber merchant. Based on this premise, we propose that the intention to visit a website is determined by two technology related construct, namely perceived usefulness and perceived ease of use and a relationship related construct, trust in the website. Empirical evidences show that trust in the website influence the intention to return on the website, both directly and indirectly, through perceived usefulness and perceived ease of use. Theoretical and managerial consequences of this intertwined effect are discussed.

INTRODUCTION

Based on the premise that internet is one option among others for consumers to fulfill his/her consumption needs, we asked ourselves what are the reasons for which they do or do not use this new tool at their disposal. Two streams of literature deal with this question of the acceptance of B2C electronic commerce by the final consumer (Gefen *et al.*, 2003b). The first one sees the internet as an information technology and, as a consequence, the same antecedent which applies in the acceptance of any information technology are incorporated in models to explain the acceptance of using a commercial website (Gefen & Straub, 2000; Shih, 2004). In the second one, internet is primarily viewed as an interface between a merchant and a customer, and the focus is on the relationship itself. Internet is a facilitating medium between two parties, and the exchange taking place is not different from other exchange involving face-to-face, phone, fax, or e-mail contact. It implies that the well established literature on commercial exchange, and the antecedents involved, does apply in an online context (Gefen *et al.*, 2003b; Pavlou, 2003). In this paper, we argue that internet is, by itself, an information technology, and this information technology is used by retailers, among others, to engage in commercial relationships with potential and actual customers. As a consequence, antecedents from the two streams of literature should have an impact on the acceptance of electronic commerce by consumers.

INTERNET AS AN INFORMATION TECHNOLOGY: THE TECHNOLOGY ACCEPTANCE MODEL

Consumers should perceive some advantages to change their consumption habits and to switch from conventional retail format to commercial website to fulfill their consumption needs. Because internet is an information technology, previous models on individual acceptance of information technology (Venkatesh *et al.*, 2003) has been applied into the internet context. The most widely used framework to explain the individual acceptance of information technology is the Technology Acceptance Model (Davis, 1989), perhaps because it is grounded in a very powerful model drawn from social psychology, the Theory of Reasoned Action (Fishbein & Ajzen, 1975), one of the most fundamental and influential theories of human behavior, and tailored to information technology acceptance. The model can be seen as a special case of this theory, highlighting two salient beliefs which impact the attitude toward using the technology, namely its perceived usefulness and its perceived ease of use. This model is based on a cost-benefit paradigm, where users, facing the introduction of a new technology in a working context, build their attitude toward using it by balancing the perceived cost of using it in term of time and cognitive costs in one hand and the perceived benefits of using it in the other hand.

To explain the acceptance of e-commerce, some variables were included within the TAM framework. The first kind of them are intrinsic to the information technology, namely perceived playfulness (Moon & Kim, 2001) and perceived enjoyment (Van der Heijden *et al.*, 2003). The rationale behind the addition of those variables is that browsing a commercial website is not only instrumental in nature, but some intrinsic pleasure is sought and expected, and the state of flow can be reached (Hoffman & Novak, 1996). Within this stream of research,

(Venkatesh et al., 2003) “Unified Theory of Acceptance and Use of Technology” can be considered as the most comprehensive model in the area of technology acceptance by end-user consumers but expands previous literature on information technology only. Additionally, variables from the individual were included within the TAM framework, namely self-efficacy (Benbunan-Fich, 2001; Ma & Liu, 2004), perceived control from the Theory of Planned Behavior (Koufaris, 2002), experience with online shopping (Balabanis & Reynolds, 2001), solitude (Das et al., 2003) and habit (Gefen, 2003).

The third type of variables that can affect the usage of internet for consumption needs are the environment related variables. The main variables of this type in the literature are risk and trust. They can be trust itself ((Gefen et al., 2003a, 2003b; Pavlou, 2003; Van der Heijden et al., 2003), or one specific dimension of trust, namely perceived credibility (Wang et al., 2003). Contrary to trust, there is no empirical support of the effect of risk on behavioral intention or one the independent variable of the TAM. Chan & Lu (2004), McCloskey (2003) and Van der Heijden et al. (2003) did not find a significant effect of risk on, respectively, perceived usefulness, behavioral intention and attitude toward online purchasing. Pavlou (2003) found a significant but weak effect of perceived risk on intention to transact, but a strong direct effect of trust.

INTERNET AS A MEAN OF ENGAGING IN A COMMERCIAL RELATIONSHIP: THE OVERWHELMING IMPORTANCE OF TRUST

Internet is an information technology used by commercial organizations to exchange information with their customers and eventually engage in a commercial relationship. Accordingly, trust, from the relationship marketing paradigm, which was found to be a major determinant of successful buyer-seller relationship (Morgan & Hunt, 1994), should play a major role in “electronic relationship” even more when perceived risk is high. Trust, as a context related variable, linked to the social context where exchange is taking place, encompasses this crucial aspect of electronic commerce, beyond the usage of a technology by individuals. Trust was successfully introduced within the TAM framework, in online shopping context, either as a direct antecedent of purchase intention (Gefen et al., 2003a), as a direct antecedent of intended use and perceived usefulness (Gefen et al., 2003b) and as an antecedent of intention to transact, perceived usefulness and perceived ease of use (Pavlou, 2003). The Pavlou (2003) model accounted for 64 % of explained variance, which outperformed models based on TAM and other technology-related variable, including TAM 2 which hardly explained 40 % of variance in usage (Legris et al., 2003).

Specifically, given the fact that security concerns, about utilization of personal data or credit card information among others, are high among potential and actual online consumers, trust in the website should have a tremendous impact on their online consumption behavior. Online consumer need to understand their “virtual” social environment and, in particular, identify how, when, why and how other people act, as their offline counterparts. The fact that prior purchase has a strong effect on intention to purchase (Brown et al., 2003) or that simply the frequency of visiting a site positively impact the propensity to buy (Moe & Fader, 2004) is another support of the idea of the effect of trust on behavioral intention, since one major way of building trust is through real interaction with the other part. Accordingly, trust in the website is hypothesized to have a direct positive impact on commercial website usage. H₁: trust in a commercial website has a positive impact on the intention to use this website

Moreover, Pavlou (2003) shows a positive impact of trust on perceived usefulness and perceived ease of use also. The rationale of the impact of trust on perceived ease of use is grounded in the transaction cost theory. The higher he/she trust in the website, the less effort the consumer has to make to scrutinize the details of the site to assess the benevolence of the merchant. On a trusted site, because he/she assumes the benevolence of the online merchant, the consumer won't waste time and cognitive effort to read the privacy policy, the term of use, and the conditions of sale, and thus experience higher ease of use. Accordingly, the following hypothesis is posited.

H₂: trust in a commercial website has a positive impact on the perceived ease of use of this website

The impact of trust on perceived usefulness is based on the credibility dimension of the trust. However, benevolence only is not sufficient, the merchant does not only need to have the intention to fulfill the needs of the consumer, but also have to be able to do so in terms of product or service quality, availability, time of delivery, preventing the risk linked to the usage of internet, and so on. Dealing with an honest but incompetent merchant is not useful. Consistent with the empirical evidence by Pavlou (2003), the following hypothesis is proposed.

H₃: trust in a commercial website has a positive impact on the perceived usefulness of this website

Moreover, consistent with the original TAM model (Davis, 1989) and its numerous empirical verifications (Legris et al., 2003), and because internet is an information technology in addition to a mean of engaging in and maintaining commercial relationship, as discussed above, perceived usefulness and perceived ease of use should have an impact on intention to use a commercial website and perceived ease of use should have an impact on perceived usefulness. Accordingly, we posit:

H₄: perceived usefulness of a commercial website has a positive impact on the intention to use this website

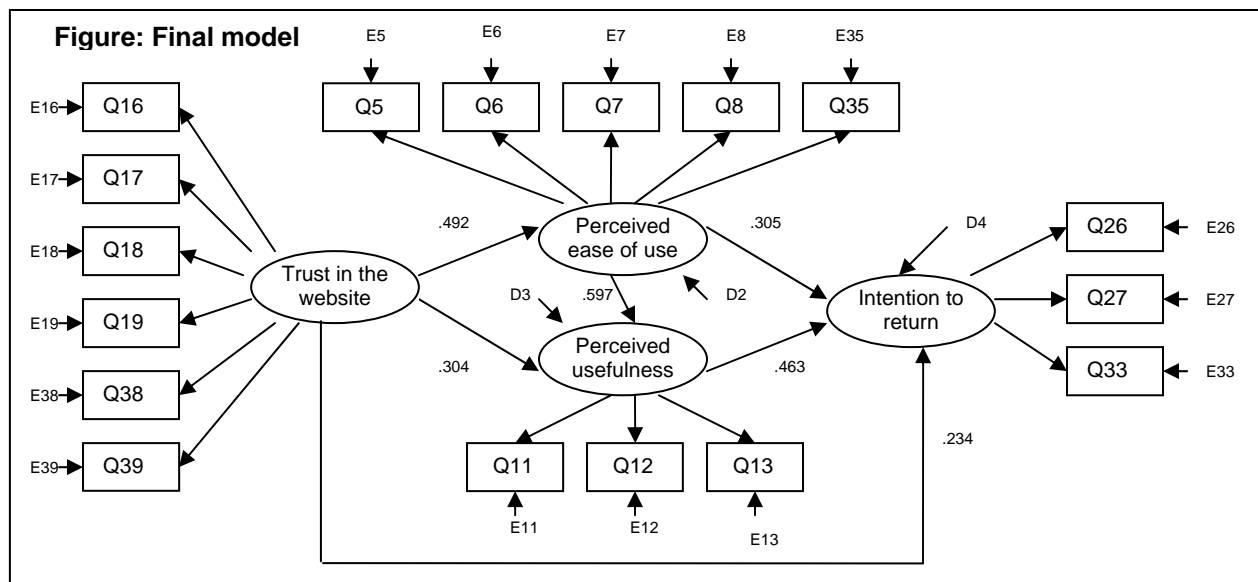
H₅: perceived ease of use of a commercial website has a positive impact on the intention to use this website

H₆: perceived ease of use of a website has a positive effect on the perceived usefulness of a website

MODEL FITTING USING STRUCTURAL EQUATION MODELING

To answer these questions, we drew our attention specifically to the determinants of the intention to return to a commercial website after having interacted with it. The data come from an experiment in which subjects, who were recruited through advertisements in press and internet and had at least a minimal experience in internet surfing, had to browse commercial websites in a laboratory setting in the RBC Financial Group Chair of Electronic Commerce. They were told to complete specific information enquiry tasks on several commercial websites as if they were at home, which imply that they can stop their task without completing it at any time if they are annoyed by their navigation. After it, they were told to fill a questionnaire to measure their attitude toward the site and their intention to return on it. They were paid for participating to this study. The final sample was 110 subjects. Each of our 4 constructs was measured by several items on a 7 points Likert-style scale. The items come from four existing website quality measurement scale, Netqual (Bressolles, 2004), eTailQ (Wolfenbarger & Gilly, 2003), Webqual (Barnes & Vidgen, 2003) and Sitequal (Yoo & Donthu, 2001). Because these scales are well established, we did not assess their validity in the current study. The independent variable was “trust in the website”, and the dependant variable was “intention to return to visit a website after having interacted with it”.

Before model fitting, we examined descriptive statistic and performed a test of multivariate kurtosis that indicated the non-normality of the data, leading us to compute robust statistics when possible, otherwise to interpret fit indices and test statistics in a conservative manner. We used the EM algorithm estimator to handle with missing data given the result of the GLS test of homogeneity of covariance matrices, which indicated a completely at random missing data mechanism. Additionally, we performed a confirmatory factor analysis with EQS to ensure that our measurement model, made from 4 latent variables measured by 3 to 6 items, fit the data. An analysis of standardized residuals, factor loadings and a Lagrange multiplier test led us to the elimination of 2 indicators of F3 (perceived usefulness) which have a trivial contribution in indicating the underlying concept. The final measurement model has a good fit (overall fit indexes: CFI=.954, NNFI=.944).



Next we moved on the overall structural model. The model was fitted to the data using structural equation modeling (see figure). A look at standardized residuals and overall fit indexes (CFI=.946, NNFI=.935 and standardized RMR=.045) indicate a fairly good fit of the model to the data. All hypotheses were confirmed and path coefficients show medium to strong relation between the constructs. As expected, trust in the website does affect the intention to return to the website both directly (.234) and indirectly through perceived usefulness (indirect effect: .141) and perceived ease of use (indirect effect: .150). Additionally, there is no surprise that this two technology-related constructs from the Technology acceptance model are strongly related to each other (.597). Overall, trust, perceived usefulness and perceived ease of use explain half of the variance (total effect: .525) of the intention to return to a website after having visiting it. It is worth to note that the sum of the indirect effect is somewhat higher (.291) than the direct effect of trust on the intention to visit a website (.234) and that the indirect effect through perceived usefulness (.141) is almost the same as through perceived ease of use (.150).

DISCUSSION AND CONCLUSION

Our findings confirm that the non technological related construct “trust on a website” not only affect the intention to visit again an commercial website, but also have a significant influence on the perceived ease of use and the perceived usefulness of this website. These two construct, in turn, affect the intention to visit the website again. The more one trust a website, the more he/she is likely to find it easy to use and useful; moreover, the more one perceive a website as easy to use and useful, the more he/she is likely to return visiting it. In other words, if we trust a website, it means that we are confident that people behind it can and will behave for our best interest and it become useful, and then we are more likely to return visiting it. Moreover, this trust will lower transaction cost and thus will make the website easier to use.

Mixing this two type of antecedent, technology related and environment related, of the intention to visit a website take into account the dual nature of commercial website, as an information technology and a medium (or marketplace) between two parties in a commercial exchange. A commercial website is an interface taking place between an online retailer and a final consumer, a mean of communication which makes possible transactions which consequences go beyond the utilization of the information technology itself. Such transaction takes place in a social context and a virtual transaction is of the same nature as other type of commercial transactions using different mean of interaction (face to face, telephone, fax...).

In the present research, we used structural equation modeling to fit our model to the data. Unless the partial least square method, an exploratory method used by Pavlou (2003), structural equation modeling with maximum likelihood estimator, a covariance based full-information method, is well suited for theory testing and development. It gave us a direct estimation of the fit of the overall model, and details about measurement errors, error variance, estimate of path and their statistical significance. Additionally, our data are experimental, they represent attitude just after performing the task on a specific website in a controlled laboratory setting. Even if laboratory experiment can be seen as not being the actual environment in which behavior occurs or attitude are formed, their major strength is that they allow the researcher to control for confounding variables. Moreover, our interest was in the behavioral intention to return to a website just after visiting it, thereby avoiding problem of attitude change during time. Additionally, we conceptualized trust as trust in the website, an aggregation of trust in the retailer who owns the website and trust in the technology itself.

These results show the overwhelming importance of trust in e-commerce, thereby urging online merchant to built this trust if they want to convert their browsers into regular browser and finally into buyer. Website design effort is needed to improve the perceived ease of use and usefulness of a website, but trust building should be the first concern of those who want to do business on the web.

Further research is needed to assess a possible reverse effect of the perceived ease of use on trust as suggested by the results of Gefen et al. (2003b). Additionally, next research should test for possible moderator of some on the relationship of the model. Since our sample included only information enquiry task, it would be interesting to test it for actual purchase task and to see if the type of task is a moderator of some of the relationships. Some other concepts related to trust, like security concerns, could be added to the model, or replace trust, and the dependant variable can be actual behavior or general attitude. Additionally, because perceived ease of use has a strong impact on perceived usefulness, testing a model with only one construct encompassing these two ones is suggested. Another intriguing question on the role of trust is if we are in presence of a compensatory process or if is there a threshold

below which no customers will deal with the website. Finally, it should be noted that the subjective norms from the Theory of Reasoned Action do not seem to have been added to the Technology Acceptance Model in the online context and further research should assess their role.

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