

A STUDY OF CONSUMER TRUST IN ON-LINE SHOPPING: METHODOLOGICAL & RESEARCH CONSIDERATIONS

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Keywords: Trust antecedents, e-business, perceived risk.

Abstract: Research as to how consumer trust can be built in an on-line environment is limited and varies considerably in terms of the dimensions of the problem that are examined. Consequently, much of our understanding of the antecedents of trust in on-line shopping context remains fragmented. This paper outlines an in-progress study in which a previously validated measurement instrument was applied in Ireland and in the United States in order to investigate the existence and importance of specific perceptions and factors that are thought to predict the generation of consumer trust in Internet shopping. It is expected that the results of this study will provide a refined understanding of the predictors and moderators of trust in an electronic purchase environment and thus make a valuable contribution not only to information systems research but also to the overall body of marketing, trust and diffusion research. In addition, the detailed insights afforded by this study are likely to be of benefit to vendors operating in a global environment in their attempts to engender consumer trust in their websites and thus increase their success in the competitive electronic commerce marketplace.

1 INTRODUCTION

Trust, its causes, nature and consequences, is recognised as a significant concept by academics from across a wide spectrum of intellectual disciplines. Sociologists (Gambetta, 1988), psychologists (Deutsch, 1962), organisational behaviour scientists (Kramer, 1999; Kramer & Tyler, 1996; Mishra, 1996; Mayer, Davis & Schoorman, 1995; Sitkin & Roth, 1993), as well as economists (Williamson, 1974; Zucker, 1986), anthropologists (Ekeh, 1974), and political scientists (Barber, 1983) have contributed to the wide body of work that exists on this topic.

Information Systems (IS) field, researchers have shown an increasing awareness of how trust contributes towards the success of many types of virtual environments (e.g. Cyr *et al.*, 2005; Sillence *et al.*; 2004; Briggs *et al.*, 2004; Gefen *et al.*, 2003; Cortitore *et al.*, 2003; Huang *et al.*, 2003; Belanger *et al.*, 2002; Shankar *et al.* 2002; Koufaris and Hampton Sosa, 2002; Lee *et al.*, 2001). It is considered to have critical importance for the success of on-line consumer purchasing (Reichheld

and Schefter, 2000; Jarvenpaa and Tractinsky, 1999).

Although information systems researchers' interest in this topic has increased, to date studies on the trust construct provide a limited view of the phenomenon. In part, this stems from the conceptual and operational confusion that surrounds the construct. For example, Grabner-Krauter and Kaluscha, (2003) observe that research in this area is limited by differing conceptualizations of the construct and a blurring of the distinction between trust and its antecedents. Moreover, there is no consensus as to how the trust construct should be operationalised (Bhattacharjee, 2002). Compounding the problem is the fact that many of the scales used in trust studies in an on-line context are neither theoretically grounded nor authenticated. This confusion has manifested in studies that examine isolated dimensions of the construct such as privacy (Hoffman *et al.*, 1999), structural assurances (Belanger *et al.*, 2002) or specific technical antecedents such as those proposed in the Technology Acceptance Model in which Davis *et al.*, (1989) proposes that intention to use a technology is predicted by beliefs regarding the perceived ease

of use and the perceived usefulness of the technology (see Pavlou, 2003). Moreover, the unique context of some studies, such as on-line banking (e.g. Tan & Teo, 2000), means that the insights provided by these studies are frequently not generalisable to consumer trust in on-line shopping.

Although there has not been direct research into trust and online shopping in Ireland, a study by Amárach Consulting (2002) indicates that the number of Irish Internet users buying on-line, having risen each quarter for several years, fell for the first time in that year. Further studies in 2003 found that although nearly half of the Irish population had Internet access, only 38% of Irish Internet users had made an on-line purchase and the majority of those were in the 35 - 49 age category and based in Dublin. It appears that, although there has been a significant increase in the number of Irish Internet users over the past decade, only a modest fraction of those users have made purchases over the Internet. It is conceivable that the reason for consumers' hesitancy to purchase online is related to their lack of trust in online vendors.

1.2 Research Objectives

The first objective of this research is to examine the antecedents of trusting behaviour (such as perceptions of vendor trustworthiness). A second objective is to examine whether patterns of trust behaviour exhibited by people working in the information and communications technology (ICT) industry are different from their peers who, while business and computer literate, are working in non-ICT specific jobs. A third objective is to examine whether differences exist between Irish and American on-line consumers in terms of the antecedents that most influence, or in their absence inhibit, their trust responses.

2 LITERATURE

It has been demonstrated that trusting beliefs positively influence online consumers' purchase intentions (Verhagen *et al.*, 2006; 2004; McKnight *et al.*; 2002; Lim *et al.*, 2001; Jarvenpaa *et al.*, 2000). Consequently, understanding the factors that influence the generation of trusting beliefs in an online environment is of considerable interest to researchers (e.g. Wang and Emurian, 2005; Briggs *et al.*, 2004; Corritore *et al.*, 2003; Gefen *et al.*, 2003, Gefen and Straub, 2003; Shankar *et al.* 2002;

Koufaris and Hampton Sosa, 2002; McKnight *et al.*, 2002, Chen and Dhillon, 2003; Lee *et al.*, 2001). The literature provides considerable evidence that a number of factors have strong predictive importance and are therefore deserving of consideration in any examination of the construct. These factors include the characteristics of the online vendor (Chen and Dhillon, 2003; Bhattacharjee, 2002; Lee and Turban, 2001; McKnight *et al.*, 2002; Peters *et al.*, 1997; Mayer *et al.*, 1995; Covello, 1992; Barber, 1983), situational factors (Bigley and Pearce, 1998; Hagen and Choe, 1998; Lewicki and Bunker, 1995; Sitkin, 1995; Ring & Van De Ven; 1992), third party certification (McKnight and Chervany, 2001; Hoffmann *et al.*, 1999; Jarvenpaa and Grazioli, 1999; Kovar *et al.*, 2000a; 2000b; Cheskin Research, 2000), the individual's propensity to trust (Kim and Prabhakar, 2004; Lee and Turban, 2001; Gefen, 2000; Kim and Prabhakar, 2000; Egger, 2000; Gefen, 2000; McKnight *et al.*, 1998; Ambrose and Johnson, 1998; Gurtman 1992) and the influence of perceived risk (Verhagen *et al.*, 2006; 2004; Pavlou and Gefen, 2004; Van der Heijden, 2003; Pavlou, 2003; Grabner-Krauter and Kaluscha, 2003; Hardin, 2001; Jarvenpaa *et al.*, 2000; Snijders and Keren, 1999; Hoffman *et al.*, 1999; Rousseau *et al.*, 1998; Mayer *et al.*, 1995).

In summary, the literature indicates a number of factors to have strong predictive importance in relation to consumer trust in online shopping. Consequently, it is essential that the influence of these factors - the characteristics of the online vendor, situational factors, third party certification, the individual's propensity to trust, and the influence of perceived risk on the consumer's trust response - is examined in this study of consumer trust in online shopping. In choosing a model to conduct the study it is therefore of particular importance that each of these constructs are adequately represented.

A comprehensive review of all trust studies and all trust models has been undertaken. A number of models were found to address some of the issues of concern in this study (e.g. Kini and Choobineh, 1998; Tan and Thoen, 2000-2001; Egger, 2000). However, the model deemed to be the most suitable for the purposes of this study was that proposed by Cheung and Lee (2000) as it captures the most significant set of trust antecedents, derived from different lines of previous research, and presents them as an integrated entity that can provide direction for empirical testing. It also tests them in the narrowly focused way necessary for this research. For example, the measurement instrument

contains 30 items measuring trust antecedents such as perceived security controls (Gauzente, 2004), perceived privacy controls (Belanger *et al.*, 2002), the vendors perceived integrity (Chen and Dhillon, 2003), the vendors perceived competence (McKnight *et al.*, 2002), personality (Kim and Prabhakar, 2004), cultural environment (Shankar *et al.*, 2002; Hagen and Choe, 1998), experience (Kong and Hung, 2006) third party recognition (McKnight and Chervany, 2001), legal framework, (Bigley and Pearce, 1998; Fukuyama, 1995), and perceived risk (Verhagen *et al.*, 2006; Van der Heijden *et al.*, 2003, Jarvenpaa *et al.*, 2000).

The influence of national culture on trust beliefs and trust outcomes has long been asserted (Gefen and Heart, 2006; Gefen *et al.*, 2005; Doney *et al.*, 1998; Fukuyama, 1995; Zucker 1986). However, Gefen and Heart (2006) note that despite repeated theorisations of trust and national culture as intricately related constructs, e-commerce trust researchers have for the main part (exceptions to this being Gefen and Heart (2006), Connolly (2004) and Javvenpaa and Tractinsky (2000)) ignored the potential effects of national culture. They note that the majority of e-commerce trust research has been conducted in the United States, a country that exhibits high levels of individualism and uncertainty avoidance (Hofstede, 1980) and assert that this raises the questions as to whether research conducted in the US can in fact be generalised to other countries. In their (2006) study, Gefen and Heart examined differences in three trust beliefs of vendor integrity, benevolence and ability between the US and Israel. The paths through which the trust beliefs were engendered were familiarity and predictability and the beliefs were examined in terms of the influence of these beliefs on behavioural intentions. The study found significant differences in the paths from integrity to purchase intentions (with integrity showing a stronger effect in the American sample in relation to purchasing intentions) and suggest that this may be the result of the US being a highly individualistic culture. Gefen and Heart therefore posit that the results indicate that conclusions based on US studies cannot and should not be automatically applied to other cultures and they accordingly emphasise the need for researchers to include national culture in e-commerce trust studies.

The four dimensions of national culture as identified by Hofstede (1980) are individualism-collectivism, power distance, uncertainty avoidance, and masculinity. The first of these, individualism (IDV), is described by Hofstede as the degree to which individuals are integrated into groups. The

second dimension is the Power Distance Index (PDI) which is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. Research (Shaffer and O' Hara, 1995) has shown that individuals from countries that with high PDI scores tend to have less trust for service providers than do individuals. The third dimension of national culture that Hofstede discusses is the Uncertainty Avoidance Index (UAI). This dimension deals with a society's tolerance for uncertainty and ambiguity and indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. The fourth of Hofstede's cultural dimensions is masculinity. Masculinity (MAS) refers to the distribution of roles between the genders, which is another fundamental issue for any society to which a range of solutions are found.

The model used in this study was developed and validated in Asia (Hong Kong), a country that exhibits (Hofstede 1980) low levels of individualism, has a high rank on the power distance index and low levels of uncertainty avoidance. These scores are in marked contrast to those of the United States and Ireland. For example, the US shows a very high individuality index with a score of 91. Ireland, on the other hand, scores about 70 on the individualism index while Hong Kong scores markedly lower with a score of only 25. The PDI score for Hong Kong is high at 68 while the same score for the US is 40 (in a 11- 104 scale) but Ireland scores only 28 on this ranking. In terms of the UAI index, the U.S ranks low at 46 (in an 8-112 scale) but Ireland ranks far lower at 35 with Hong Kong lowest at a score of only 29. This indicates that Hong Kong consumers and Irish consumers tend to be more tolerant of uncertain situations than are Americans. As all three countries are similar in the masculinity index with Hong Kong at 57, the US at 62 and Ireland at 68, masculinity is not hypothesised as an aspect of national culture that could provide an explanation for differences in trust beliefs between these countries. In addition, it should be noted that while the US and Ireland are by no means polar opposites on each of the cultural indices, differences between them are evident in terms of three of the four indices, in particular the individualism index and to a lesser degree the power-distance and uncertainty avoidance indices.

The hypothesized effects of national culture on online consumer's trust beliefs will be examined by comparing the model developed and validated in Hong Kong with data collected in the US and

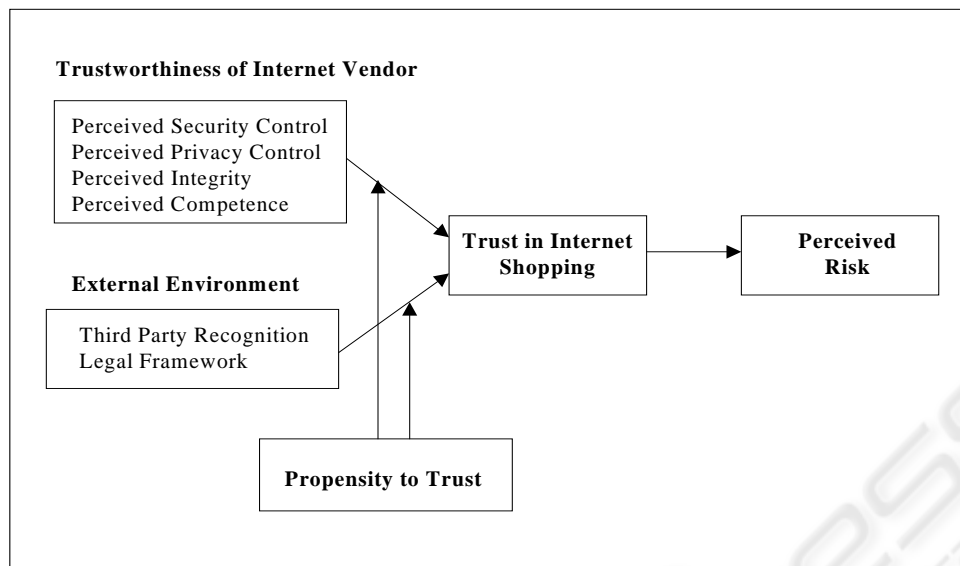


Figure 1: Conceptual Model of Trust in Internet Shopping. (Source: Cheung and Lee, 2000).

Ireland. If regardless of national culture the trust antecedents were found to be similar, this would point to the culture independence of the model. However, if the results differ markedly, this would confirm the concerns of researchers (e.g. Fukuyama, 1995) regarding the generalisation of US trust studies.

3 MEASUREMENT INSTRUMENT

In their model (figure 1) Cheung and Lee (2000) show that consumer trust in on-line shopping is predicted by two sets of antecedents – factors that create a sense of vendor trustworthiness and factors related to the external environment. The former relate to the vendor's perceived integrity and competence and the vendor's security and privacy controls. The latter (external environment) encompass third party recognition (e.g. seals of approval) and the legal framework. The model shows that the effect of both sets of factors on the consumer's trust beliefs is moderated by the consumer's propensity to trust. It also acknowledges the relationship between perceived risk and the online consumer's trust response.

In the measurement instrument for this model, the moderating variable 'Propensity to Trust' is a composite of three sets of items. These are: (i) personality items relating to the individual's tendency to trust, (ii) experience items relating to the

individual's previous experience and (iii) cultural environment items relating to the level of trust in the individuals environment. In this study, these variables will be treated separately in order to examine their effects more closely.

The research hypotheses are as follows:

Hypothesis 1: *The perceived security control of Consumer Trust in Internet Shopping (CTIS).*

Perceived security control refers to the Internet users' perception of the Internet vendors' ability to fulfill security requirements, such as authentication, integrity, encryption, and non-repudiation. The influence of perceived website security controls on consumers' trust responses is acknowledged in the literature (Gauzente, 2004; Belanger *et al.*, 2002.)

Hypothesis 2: *The perceived privacy control of an Internet vendor is positively related to CTIS.*

Perceived privacy control is conceived as the Internet users' perception of the Internet vendor's ability to protect consumers' personal information collected during electronic transactions from unauthorized use or disclosure. The literature acknowledges that online consumers' awareness of their lack of control over personal data can influence their behavioral response (Gauzente, 2004; Grabner-Krauter and Kaluscha, 2003; Goldsmith and Bridges 2000; Hoffman *et al.*, 1998)

Hypothesis 3: *The perceived integrity of an Internet vendor is positively related to CTIS.*

Perceived integrity refers to the Internet user's perception of on the vendor's honesty. For instance,

whether it has consistent actions, whether its actions are congruent with its own words, and whether its transactions with its consumers are fair. In the literature, support for the influence of perceived integrity on the generation of trust beliefs is provided by McKnight *et al.*, (2002), Peters *et al.*, (1997), Mayer *et al.*, (1995), Covello (1992), and Barber, (1983).

Hypothesis 4: *The perceived competence of an Internet vendor is positively related to CTIS.*

Perceived competency is defined as the Internet users' perception of the skills, abilities, and expertise of Internet vendors. The literature provides strong support for the influence of perceived integrity on the generation of trust beliefs (e.g. McKnight *et al.*, 2002; Lee and Turban, 2001 Mayer *et al.*, 1995; and Barber, 1983).

Hypothesis 5: *The perceived effectiveness of third party recognition is positively associated with CTIS.*

Third party recognition refers to the assurance provided by independent bodies that the Internet vendor is trustworthy. Support for the influence of third party certification on the generation of consumer trust beliefs is provided by McKnight and Chervany (2001), Hoffmann *et al.*, (1999), Jarvenpaa and Grazioli (1999), Kovar *et al.*, (2000a; 2000b) and Cheskin Research (2000).

Hypothesis 6: *The perceived effectiveness of the legal framework is positively associated with CTIS.*

Legal framework refers to the law and code of practice established to protect Internet shoppers during electronic transactions. The literature provides strong support for the influence of situational factors such as legal mechanisms on the generation of trust beliefs (e.g. Hagen and Choe, 1998; Lewicki and Bunker, 1995; Sitkin, 1995; Ring & Van De Ven; 1992),

The following 6 hypotheses relate specifically to the moderating effect of the propensity to trust characteristic on the on-line consumer's trust response. The influence of the individual's propensity to trust on their trust response is widely documented in the literature (e.g. Kim and Prabhakar, 2004; Lee and Turban, 2001; Gefen, 2000; Kim and Prabhakar, 2000; Egger, 2000; Gefen, 2000; McKnight *et al.*, 1998; Ambrose and Johnson, 1998; Gurtman 1992).

Hypothesis 7: *Propensity to trust moderates the relationship between the perceived security control of an Internet vendor and CTIS.*

Hypothesis 8: *Propensity to trust moderates the relationship between the perceived privacy control of an Internet vendor and CTIS.*

Hypothesis 9: *Propensity to trust moderates the relationship between the perceived integrity of an Internet vendor and CTIS.*

Hypothesis 10: *Propensity to trust moderates the relationship between the perceived competence of an Internet vendor and CTIS.*

Hypothesis 11: *Propensity to trust moderates the relationship between the perceived effectiveness of the third party recognition and CTIS.*

Hypothesis 12: *Propensity to trust moderates the relationship between the perceived effectiveness of the legal framework and CTIS.*

The following hypothesis relates to the perceived risk variable. The literature acknowledges the relationship between perceived risk and the consumer's trust response (e.g. Verhagen *et al.*, 2006; 2004; Pavlou and Gefen, 2004; Van der Heijden, 2003; Pavlou, 2003; Grabner-Krauter and Kaluscha, 2003; Hardin, 2001; Jarvenpaa *et al.*, 2000; Snijders and Keren, 1999; and Hoffman *et al.*, 1999.)

Hypothesis 13: *CTIS is negatively associated with perceived risk in Internet shopping.*

4 METHODOLOGY

The measurement instrument proposed by Cheung and Lee was extended to include demographic information and will be applied to two samples, one set of respondents with non-technical backgrounds and the other set with highly technical backgrounds.

For the Irish section of this study, the first sample chosen was obtained from the Irish Master of Business Administration (MBA) Association. It consisted of 620 individuals who have completed an MBA degree in the preceding 10 years. Previous studies of consumer trust in on-line shopping have been based on current undergraduate or postgraduate students from one university (Belanger *et al.*, 2002; Borchers, 2001). In this study, the participants will comprise graduates of six universities in Ireland. .

The second sample was obtained from the Irish Computer Society (ICS) and consisted of 218 consumers with highly technical backgrounds. To

become a professional member of the Irish Computer Society necessitates having a degree in a technical discipline along with a minimum of 3 years work experience in a technical or technical-related position. These requirements will improve the likelihood that the respondents will have adequate disposable income and technical competency to engage in online shopping. However, it was reasoned that an individual could have recently joined the ICS but that their technical knowledge could be considerably outdated (which would reduce their knowledge and experience of online shopping). To overcome this potential limitation, an age limit of 45 years of age was imposed on the participants selected.

A previous study, which used this measurement instrument, consisted of a sample of 118 students in the United States (Borchers, 2001). In concluding his study, Borchers stated that future studies using this measurement instrument should have larger samples than were used in his research and ideally should be derived from one culture only. Therefore, both samples for the Irish stage of this research were substantially larger than the sample used in Borchers' study and consisted predominantly of Irish subjects.

For the United States section of the research, the first sample chosen was obtained from 220 consumers who had recently completed their MBA at Northeastern University, Boston. The second chosen consisted of 128 postgraduate students taking Computer Science programmes at Northeastern University and 22 staff from the Computer Science Department in that university.

The data collected was input into SPSS (Statistical Package for the Social Sciences) and checks for the internal reliability of each construct were made using Cronbach's Alpha values and factor analysis. Regression analysis will be used to examine the predictive importance of each the trust antecedents under examination and an independent t-test will be used to compare the technical and less technical samples in both countries.

5 CONCLUSIONS

Although this study is not yet completed, a number of comments can be made regarding the expected outcomes. Firstly, it is anticipated that the study findings will provide evidence as to whether, and to what degree, Irish and American consumers' trust in online shopping is influenced by the perceived

characteristics of the online vendor, specifically perceptions of vendor competence and vendor integrity. The findings will also indicate whether security and privacy controls on vendor websites exert a positive influence on the generation of consumer trust beliefs. Similarly, the effectiveness of third party seals of approval and legal mechanisms in influencing the generation of trust beliefs will be shown. The influence of the propensity to trust characteristic on consumer trust in online shopping and the influence of perceived risk on the online consumers' trust response will also be indicated. Moreover, as results obtained from both business and technical samples will be compared, the findings will indicate whether the factors that influence the generation of trust beliefs in an online context differ according to the consumer's level of technical skill.

All of these factors - the characteristics of the online vendor, situational factors, third party certification, the individual's propensity to trust, and the influence of perceived risk on the consumer's trust response, have been identified in the literature as likely to have strong predictive importance in the context of online shopping. However, whether this is the case, and whether it remains consistent regardless of cultural boundaries remains a matter of conjecture. Similarly, the influence of technical skill on the online consumer's trust response has not previously been determined. This study, therefore, has both practical and theoretical value. It will provide increased insight into the nature of the trust construct as observed in the behaviour of users and potential users of online shopping. By providing a more refined understanding of the predictors and moderators of trust it will make a valuable contribution not only to information systems research but also to the overall body of marketing, trust and diffusion research.

It is expected that this study will significantly extend our understanding of the phenomena along a number of dimensions. As it is the first large-scale empirical study of its kind in Ireland, it therefore provides insight into the contrasting antecedents of consumer trust in online shopping from a European perspective. It clearly distinguishes between trust and trust antecedents - an issue that has plagued trust research to date. It builds on conceptualisations of trust accepted by researchers and applied a validated measurement instrument that has previously been used by a trust researcher in another country. Thus, it is anticipated that the test results will be used to refine an existing model and increase our knowledge of the factors that predict the online consumer's trust response.

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