

Measures of Trust in the Online Context: An Empirical Investigation

Richard Croome, Bishnu Sharma and Meredith Lawley, University of the Sunshine Coast, Australia

Abstract

This study identifies measures of trust and investigates whether any of these measures are more important than others in consumers' perceptions of the online buying decision process. Depth interviews, focus groups and a field survey approach were used to complete this study. The results are based on responses received from Australian consumers (n=140). The results suggest that online trust develops as a function of trust in the medium and the vendor and the consumer's confidence in the protection of one's privacy. The study also found that these attributes are more important antecedents of online trust than a well-known brand, ease of use of the website or the perceived usefulness of the retail channel. The implications for practice are also discussed.

Introduction

The literature suggests that trust is an important element in the business-to-consumer Internet transactions. Research on trust has attracted much attention in the online consumer behaviour literature (Gefen, Karahanna and Straub, 2003). Online trust research has included understanding the components of trust in relation to the Internet as a medium (Olivier, Benoit and Aubert, 2001) and the online vendor (Chen and Dhillon 2003) to determine the measures of uncertainty and risk of loss (Ahuja, Gupta and Raman 2004). This paper builds on past research and examines how trust is created for the consumer online.

Literature Review

Trust in online shopping has been linked to the Internet being trustworthy in terms of the perceived usefulness of the information (Song and Zhang 2004) and the security of the transaction (George 2004). The literature also suggests that trust of the website vendor has a link with the ease-of-use of the web site (Jun, Yang and Kim, 2004), well known brands (So and Sculli 2002) and assured privacy (Long and McMellon 2004).

Risk of consumer loss online can occur during search and evaluation component of the buying decision process with respect to incomplete or incorrect product and pricing information, during the transaction if the vendor is unethical, and during delivery where the product may be damaged (Grabner-Kraeuter 2002). Thus, trust in the online consumer context manifests when tangible or intangible cues are used to reduce uncertainty and risk throughout the buying decision process (Tan and Sutherland 2004). The terms in the literature used to describe these cues are presented in Table 1.

Table 1: Summary of the Cues Attributable To Building Online Trust

Main terms	Author / Date	Cue
Ease of use	Jun, Yang and Kim (2004); Monsuwe, Dellaert and de Ruyter (2004); Song and Zhang (2004); Gefen, Karahanna and Straub (2003); Argawal and Venkatesh (2002); Devaraj, Fan and Kohli (2002); Yoo and Donthu (2001); Alba et al. (1997)	Web site is easy to use - has an intuitive interface

Main terms	Author / Date	Cue
Assurance	Long and McMellon (2004); Song and Zhang (2004); Tan, Xie and Li (2003); Wang and Tang (2003); Devaraj, Fan and Kohli (2002); Zeithaml, Parasuraman and Malhotra (2002); Kolesar and Galbraith (2000); Liu and Arnett (2000);	Web site delivers on promise
Ease of navigation / Navigation	Kim, Shaw and Schneider (2003); Tan, Xie and Li (2003); Fogg et al. (2002); Koufaris, Kambil and LaBarbera (2002); Zeithaml, Parasuraman and Malhotra (2002); Childers et al. (2001); Egger (2001, 2000); Olivier, Benoit and Aubert (2001); Kaynama and Black (2000);	Web site is easy to use
Empathy	Long and McMellon (2004); Song and Zhang (2004); Wang and Tang (2003); Devaraj, Fan and Kohli, (2002); Liljander et al. (2002); Kolesar and Galbraith (2000); Liu and Arnett (2000)	Sympathetic to the user's needs and wants
Perceived usefulness	Monsuwe, Dellaert and de Ruyter (2004); Song and Zhang (2004); Gefen, Karahanna and Straub(2003); Devaraj, Fan and Kohli, (2002); Koufaris (2002); Alba et al (1997)	Is the best way to shop
Privacy	Ahuja, Gupta and Raman (2004); Kalyanam and McIntyre (2002); Zeithaml, Parasuraman and Malhotra (2002); Wang et al. (2000); Zeithaml et al. (2000)	Personal details not divulged
Reliability	Jun, Yang and Kim (2004); Long and McMellon (2004); Song and Zhang (2004); Tan, Xie and Li (2003); Wang and Tang (2003); Devaraj, Fan and Kohli, (2002); Rotondaro (2002); Zeithaml, Parasuraman and Malhotra (2002)	No dead or broken links
Responsiveness	Long and McMellon (2004); Song and Zhang (2004); Tan et al. (2003); Wang and Tang (2003); Devaraj, Fan and Kohli, (2002); Zeithaml, Parasuraman and Malhotra (2002); Kaynama and Black (2000);	Page downloads, order fulfilment are quick
Safety	Reddy and Iyer (2002); Rotondaro (2002); Hoffman, Novak and Peralta (1999)	No risk of loss
Security	Ahuja, Gupta and Raman (2004), Jun, Yang and Kim (2004) Joines, Scherer and Scheufele (2003); O'Cass and Fenech (2003); Tan, Xie and Li (2003);	No unauthorised third party access
Service recovery/ Return process	Cook (2002); Torkzadeh and Dhillon (2002); Zemke and Connellan (2002); Baird (2001); Bates (2001); Straus and Hill (2001)	Dispute resolution, easy return of products
Useability	Palmer (2002); Egger (2001, 2000); Kim and Moon (1998); Alba et al. (1997); Jarvenpaa and; Todd (1997); Boling (1995);	Web site is easy to use

Research Method

Both qualitative (depth interviews and focus groups) and quantitative (survey) approaches were used in this study. Depth interviews with four experienced and knowledgeable people were conducted. The results of the depth interviews were used to validate the attributes of online trust identified in the literature. Three focus groups, consisting of between five and seven people were also convened drawing from a pool of university staff members. The focus group discussions extended the findings of the depth interviews by identifying that the Internet offers a 'no-pressure' shopping environment. The Internet allows consumers to shop at-their-own-pace and make their purchase when they are ready. The results of the qualitative analysis led to the development of a 13-item scale. The 13 items and their origin are presented in Table 2 and include aspects of the search, evaluation, purchase and post purchase evaluation components of the buying decision process.

The field survey respondents included a proportional sample of the Australian electoral roll and staff of a Queensland university. One hundred and forty six useable responses were received. Respondents were initially asked to identify a product they had purchased entirely

online within the past 12 months. Respondents were then asked to rate their agreement or disagreement in relation to the nominated purchase to 13 statements/items representing the dimension of trust. A modified five-point Likert scale including the option of ‘not applicable’ was used. The survey also collected demographic data.

Table 2: The 13 Items Used In This Research and Their Origin

Items	Origin
I knew I could shop at my own pace	New. Developed from the focus groups
I knew I would not be pressured into the sale	New. Developed from the focus groups
I trusted the brand I was shopping for	Adapted from Gefen, Karahanna and Straub(2003)
It was easier to shop for it online	Adapted from Devaraj et al. (2003)
I knew shopping on the Internet was safe	Adapted from Tan et al. (2003)
It was a pleasing environment	Adapted from Lui and Arnett (2000)
I knew the online vendor would act in my best interests	Adapted from Olivier, Benoit and Aubert (2001)
I knew my privacy would be respected online	Adapted from Torkzadeh (2002)
It was the most useful way to make the purchase	Adapted from Tan et al. (2003)
I trusted the online vendor	Adapted from Gefen, Karahanna and Straub(2003)
The online vendor had nothing to gain by being dishonest	Adapted from Gefen, Karahanna and Straub(2003)
I felt in control shopping on the Internet	Adapted from Devaraj et al. (2002)
I knew I could return the product if it was defective	Adapted from Torkzadeh (2002)

Data Analysis

Analysis was restricted to the development of a one-factor congeneric measurement model using AMOS (Anderson & Gerbing 1998). Convergent validity was checked using a principal components factor analysis since the analysis resulted in only one factor with an eigen value of above one. The exploratory factor analysis identified six variables with betas (β) above 0.50 (Table 3). The item, the online vendor had nothing to gain by being dishonest ($\beta=.496$), just misses the cutoff criteria of $< .50$ for good reliability (Maruyama 1998). The items relating to a trusted brand ($\beta=.176$) and the return of defective goods ($\beta=.216$) were the only two items to have a low reliability. Despite having a Cronbach alpha of 0.785 and the variance explained of .66 for 13 items in this scale the goodness of fit indices presented in Table 4 fail to meet acceptable criteria (Holmes-Smith et al. 2005). Thus, the 13-item scale is not supported.

Table 3: Standardised Estimates - One Factor Congeneric Model

Variable	β	(cr)	Variable reliability	Factor score regressions
I felt in control shopping on the Internet	.634	7.463	.402	.202
I knew the online vendor would act in my best interests	.623	7.408	.388	.213
I trusted the online vendor	.601	6.998	.361	.188

Variable	β	(cr)	Variable reliability	Factor score regressions
I knew shopping on the Internet was safe	.601	7.170	.361	.16
I knew my privacy would be respected online	.567	6.629	.321	.156
It was a pleasing environment	.509	5.728	.260	.132
The online vendor had nothing to gain by being dishonest	.496	5.715	.246	.114
I knew I could shop at my own pace	.472	5.280	.223	.14
It was the most useful way to make the purchase	.458	5.202	.209	.13
It was easier to shop for it online	.403	4.487	.163	.094
I knew I would not be pressured into the sale	.356	3.927	.127	.092
I knew I could return the product if it was defective	.216	2.375	.047	.038
I trusted the brand I was shopping for	.176	1.933	.031	.043
Cronbach's alpha = .785		Variance extracted = .660		Mardia's coefficient = 39.36

Table 4: Goodness of Fit Estimates - One Factor Congeneric Model

Factor	χ^2	Df	p	χ^2/df	RMR	GFI	AGFI	RMSEA	TLI	CFI
Trust (13 items)	169.1	65	.000	2.601	.070	.832	.765	.105	.677	.731

Post-hoc model testing involved deleting the weakest items, and retesting the scale after the removal of each weak item. In each instance the goodness of fit indices improved, however, they did not meet acceptable levels. When seven variables remained, the item relating to 'pleasing environment' had a low reliability and the modification indices suggested removal of the item to improve the structural model. Once removed, the remaining six items were retested. The results indicated that all remaining items had significant betas (β). However, the items relating to 'control' and 'nothing to gain by being dishonest' shared large standardized residuals, and the removal of the item relating to control produced better standardized measures (Table 5) and goodness of fit indices (Table 6).

Table 5: Standardised Estimates - Post-hoc One Factor Congeneric Construct

Variable	β	(cr)	Variable reliability	Factor score regressions
I knew the online vendor would act in my best interests	.678	8.047	.460	.329
I trusted the online vendor	.663	7.768	.439	.294
I knew my privacy would be respected online	.655	7.655	.429	.268
I knew shopping on the Internet was safe	.629	7.286	.396	.221
The online vendor had nothing to gain by being dishonest	.539	6.140	.291	.165
Cronbach's alpha = .765		Variance extracted = .522		Mardia's coefficient = 5.741

Table 6: Goodness of fit estimates for the post-hoc one factor congeneric model

Factor	χ^2	Df	p	χ^2/df	RMR	GFI	AGFI	RMSEA	TLI	CFI
Trust (5 items)	7.152	5	.210	1.43	.034	.98	.940	.054	.972	.986

Discussion

The study identified ease of use, assurance, ease of navigation, empathy, perceived usefulness, privacy, reliability, responsiveness, safety, security, service recovery, and useability as the potential measures of trust. The results in Tables 5 and 6 suggest that trust in the online context is strongly related to the perception that the Internet is a safe place to shop and that the vendor is trustworthy. However, as opposed to what has been discussed in the literature, the items relating to a trusted brand, ease-of-use and perceived usefulness have a weak correlation with the perceived level of consumer's trust.

Perceived usefulness and ease-of-use are core concepts within the technology acceptance model and have been shown to be an important factor in the acceptance of new technologies (Gefen, Karahanna and Straub, 2003; Davis 1989). It is surprising to note that the findings of this study do not provide much support to these elements. This is perhaps explained by the fact that any issues in relation to web site navigation and the perceived usefulness of the Internet as a shopping medium have now been resolved.

With respect to the item relating to trusted brand, Eastlick and Lotz (1999) identified familiar brands as being suited to being sold on the Internet and Feindt, Jeffcoate and Chappell (2002) found brand image to be critical to online retail success. Huang et al. (2004), however, report no significant difference between online shoppers' perceived risk vis-a-vis brand familiarity. The findings of this study are consistent with Huang et al.(2004).

The importance of brand in the literature far outweighs the number of findings that the concept of brand is not important (Gefen, Karahanna and Straub, 2003). However, this study indicates that the notion of a trusted brand in the context of creating online trust is not as important as trust in the medium and the vendor or knowing that one's privacy will be protected.

Conclusions

The practical implications of this research are that consumers expect web sites to be easy to use and a site selling big name brands will do little to convince the consumer that the vendor will act in their best interests. Therefore, the findings of this research suggest that the onus is on the online vendor to provide visual (and possibly audio) cues that they will always act in the consumer's best interests. From a theoretical viewpoint, the results of this research suggest that gaining consumer's trust online requires similar strategies and attention to detail to those used within the offline retail channels. Thus, understanding how and why trust is developed in the offline retail environment can potentially contribute to understanding trust in the online environment.

The findings of this research suggest that 'trust' of the medium and the vendor are more important determinants of online 'trust' than a trusted 'brand'. Additionally, the issue of the Internet being useful as a shopping channel and issues in relation to creating easy to use web sites seems to have been resolved from the consumer's perspective. The findings suggest that the reasons why trust is developed online may be similar to the reasons why it is developed in the traditional offline shopping context.

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