

The influence of consumers' consciousness of institutional factors on initial trust building

Li-Ting Huang, Kuo-Lien Yin, Cheng-Kiang Farn
Department of Information Management
National Central University
300, Chung-Da Rd., Chung-Li City, Tao-Yuan County, 320
Taiwan, R.O.C.

Abstract: In order to induce new comers' confidence in on-line transaction, e-tailers provide trustworthy information in the web sites, such as warranty, privacy policies, assurance, and related statements. Nonetheless, the effectiveness of this information has not been fully understood. An artificial legal consultation service website was built to assist look into this issue by employing signal theory and the perspective of trust transference. The results indicate the critical intermediary role of warranty perception in the process of initial trust building. Only if consumers believe and credit the trustworthy information about assurance and web seal, it could evoke sufficient trust necessary to make an on-line transaction. Furthermore, trusted third party web seal on web pages may also be an effective way to build consumer trust. Consequently, e-tailers should devote time to apply qualified signals of assurance and trusted third party seal for attracting consumers' confidence and subsequently build consumers' initial trust on e-tailers.

Key-Words: Third Party Seal, Warranty Perception, Initial Trust, Trust Transference

1 Introduction

While Internet has become a common channel for business, most consumers are still not adopted e-commerce as their main channel for transactions [9]. A concern may stem from the insufficient trust of e-tailers [3], [11]. Due to distrust, consumers are worried about privacy, security, and control issues regarding personal information, and in turn, result in avoidance in conducting transactions in the e-commerce environment.

The fundamental differences between physical store and e-tailer are from the separation of time and space. Consumers could not touch the target products, feel the shopping environment, contact salespersons for face-to-face inquiries, and take immediate possession upon purchasing. An inexperienced consumer tries to build up trust by relying on information, such as situational surrounding (web environment) and external sources (advisors' opinion, price, warranty, advertisement, reputation, size, etc.). Especially, e-tailers disclose statements related to security, privacy and promise, which are certificate by public third party or institution.

Prior research related to on-line initial trust building focused on the influence of web design, company-related information, and institutional trust, such as structure assurance and web seal. However, little consider consumers' confidence in the structure assurances and warranties proposed by e-vendors [11], [12]. We attempt to answer two key research

questions in this study. First, how will inexperienced consumers' attitudes towards the information provided by e-tailers on their web sites influence their level of initial trust in the e-tailer? Second, what types of institutional information in web sites will consumers tend to believe, thus resulting in building initial trust of the e-tailer? We hope these will help provide more understanding of the initial trust building process.

2 Conceptual Model and Hypotheses

2.1 Initial Trust Building

Trust building is especially salient in an unfamiliar web setting. The extent of initial trust could determine how successful consumers are induced to transact with e-tailers [11]. Consumers usually assess unfamiliar e-tailers and build initial trust by collecting information of firm-specific attributes (e.g., external sources) or on an intermediary mechanism (e.g., formal social structures). It is highly probable that a new consumer is incapable of gathering sufficient information and assessing the quality and reputation based only on the web content provided by the vendor itself. Thus external signals derived from situational surrounding and a kind of formal impersonal procedure may be a reliable source.

McKnight et al. [11] asserted that structural assurance influence consumers' trust beliefs and trust intention, in turn, affecting consumers' behavioral

intention to use a web site. Structural assurance refers to the protective legal (e.g. privacy policy) or technological structures (e.g. SSL) based on the institution-based trust perspective [11], [15], [16]. Doney and Cannon [4] suggested that vendors may cultivate trust transferred from a trusted third party such as friends, certified institutions, government offices, etc. But, Kaplan and Nieschwietz [9] suggested that only providing privacy or other company policies is insufficient for creating a safe and secure transaction environment. It may be necessary for e-tailers to employ web-based assurances by displaying certified web seals issued by a trusted third party (e.g. BBBOnline, TRUSTe, and WebTrust), so as to enhance the creditability of its web site [9], [11].

2.2 Signal Theory and Warranty Perception

McKnight et al. [11], [12] proposed an initial trust building model, relating to how institutional trust influence on initial trust and behavioral intention. But the result of McKnight et al.'s [12] study reveals that noticeable professional association seal is ineffective in the introductory stage of initial trust building. How consumers build initial trust could not be explained well because of the absence of consumers' faith for the structure assurance or web seals. The issue here is whether structural assurance and third party seals can be effective in trust building. The possible reason is due to the consumers' difficulty of distinguishing a good quality signal from a bad quality signal. Nevertheless, consumers may be sceptical about the credibility of the signals. Signals will fail if consumers discredit them.

Following the signal theory, only the consumers having experience with specific products or services are capable of obviating the effect of information asymmetry and making the judgment well [13]. According to the signal theory, warranties can serve as direct signals of product quality in the competitive markets, if the e-vendors can be responsible for the warranty [5]. Consumers may have more faith in the warranty when they see a web seal they trust, as they may believe in the seal certification procedure. Accordingly, we believe that the signals will affect trust through warranty perception [5], [9]. Warranty perception refers to the level of reliability and adequacy about warranty information (signals) of e-tailers perceived by consumers [5]. High warranty perception rooted in consumers' high faith in signals will boost trust in e-tailers [4], [9]. Thus, we propose:

H1: *Warranty perception is positively associated with trust of e-tailers.*

2.3 Institutional Trust

The concept of institutional trust has been applied in many e-commerce studies of trusting building and privacy protection (e.g., [11], [14]). McKnight et al.'s [11] initial trust building model demonstrates that the institutional structure factors are important antecedents of trust building except for the characteristics of e-tailers. Zucker [16] proposed that trust is produced from three modes. The first is process-based trust which is tied to past experience. The second is characteristic-based trust which is from the background of individual. The last is institutional trust, rooted in sociology. It is situational constructed and tied to formal society structures or intermediary mechanism [16].

There are two dimensions of institutional trust, including intermediary mechanism of protecting transaction (i.e. escrow or government regulatory) and certified guarantee of a party's trustworthiness by specific individuals or firms (i.e., third-party certification) [16]. These can produce the needed trust between the e-vendor and customers. McKnight and Chervany [10] combined them and proposed a new concept of "structural assurance", indicating the belief that favorable consequences are possible because of contextual structures, such as contracts, regulations, and guarantees. That is, consumers feel that the web environment is safe and secure due to protective legal (e.g., privacy policy) and technological structures (e.g., SSL) in it [11], [15], [16].

2.3.1 Structure Assurance

Structure assurance is defined as "the degree of security which consumers perceived from web environment, such as contract, regulation, warranty, etc" [11]. Higher level of structural assurance may assist consumers in overcoming the fear of on-line shopping in general and increase their level of trust in a particular web site. Yet, as suggested in the signal theory, the efficacy of structural assurance should depend on the extent of consumers' confidence. Once consumers perceive higher structural assurance and believe that e-tailers do not display misleading assurances in the web sites, they will tend to trust e-tailers [5]. Hence, we propose:

H2: *Structural assurance is positively associated with warranty perception of e-tailers.*

2.3.2 Trust Transference and 3rd Party Web Seal

On-line seal programs watch over whether an e-tailer adheres to established principle and criteria about privacy, security, availability, confidentiality and

processing integrity. After qualified for the certification, a e-tailer is allowed to display a specific seal of approval on it websites. However, once the e-tailer was found to disobey the principles or invade consumers' privacy, the public institution will terminate the approved seal mark and administer appropriate legal actions. Thus, employing third party certification programs to communicate privacy and security commitment with consumers would be important for on-line transaction. Hence, we propose:

H3: *The presence of web seal leads to higher level of warranty perception.*

However, Doney and Cannon [4] suggested that vendors may cultivate trust transferred from a trusted third party such as certified institutions, government offices, etc. Based on the perspective of trust transference, consumers will transfer their trust of a seal-issuing trusted third party to the web site having that seal. Empirical evidence reveals the existence of a web seal issued by a trusted third party (e.g. BBBOnline, TRUSTe, and WebTrust) could enhance the extent of trust in e-tailers (e.g. [9], [10]). Hence, we propose:

H4: *The presence of a web seal leads to higher levels of trust in e-tailers.*

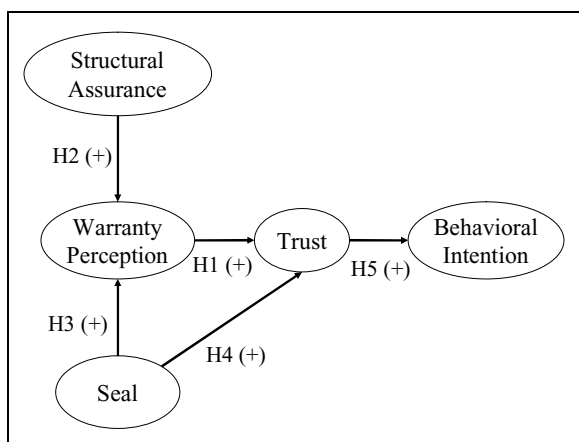


Fig. 1. Research Model

2.4 Trust and Behavioral Intention

In the initial trust building model, McKnight et al. [11] suggest that initial trust boosts the consumers' behavioral intention. If a consumer believes that the e-tailer will protect his/her personal information and privacy, s/he will be willing to transact with this e-tailer, including sharing information and purchasing products or services [11]. On the contrary, if a consumer expects negative consequences of web usage, they may be hesitate to transact with vendors in an on-line context, such as revealing personal information, paying by credit card, or following professional advices [8] [11]. The behavioral

intention is defined as “the consumers’ intention to engage in sharing personal information with web sites and buying products or services from web sites” [11]. Hence, we propose:

H5: *Trust of e-tailers is positively associated with behavior intention.*

The proposed research model is depicted in Fig. 1.

3 Research Method

3.1 Experimental Design

Since our goal is to investigate initial trust, we wanted to prevent the threats to internal validity from the effects of brand name and prior experience with a given product or service. The presence and absence of 3rd party seal is an important independent variable in our research framework. Therefore, a controlled experiment with student subjects was conducted, manipulating the existence of a third party seal while eliminating the effect of brand name and prior experience. An artificial web setting, unknown to the subjects, was built. Data were collected based on a self-administered survey during the process of the experiment. Experimental design maximized the internal validity by improving the probability of convincingly establishing linkage between independent and dependent variables in comparison with any other primary data collection method.

An unreal “legal advice” is our web domain following McKnight et al.’s [11] experimental design. A legal consultation service web site, which is provided by law offices and professionals, was built using web techniques for such exercise. We built two versions of the artificial web setting. The only difference between them is that one has a well-known third party web seal displayed at the location where seals normally appear, while the second has mock company logos displayed at the exactly same location. The AICPA/CICA WebTrust was chosen as the well-known third party seal in our experiment, as shown in Fig. 2.



Fig. 2. The WebTrust seal

3.2 Experimental Setting and Procedure

There are four reasons why students were chosen as research sample. First, they provide a means to operate the controlled experiment procedure. Second,

the task of resolving landlord/tenant dispute is something the university students frequently faced when they rent off campus housing. Third, online shopping is an individual decision, so the subjects' prerequisites are just having individual Internet experience, rather than experience in organizational context [11]. All subjects averaged above 2 years of Internet experience. They are potential consumers to utilize Internet as the main tool of commercial transaction.

The experiment was conducted in four steps.

Step1: Since our study aims to explore the influence of existence of web seal, rather than the effect of awareness, we wanted to make sure that all subjects' are aware of the seal. To prevent the bias of subjects' unfamiliarity with web seals, a lecture session on web seals was embedded in three chosen electronic commerce classes, explaining the meaning and values of web seals, well ahead of the experiment. A short hands-on exercise at the end of the lecture was given to the subjects in a computer classroom, in order to confirm that everyone understands of web seals.

Step2: A web-based questionnaire was administered before actually starting the experiment, to measure subjects' perceptions on structural assurance. The collected responses were later examined to screen out invalid responses, such as the same answers to all questions.

Step3: Subjects was given assignments to resolve a landlord/tenant dispute scenario. They were randomly given a version of the web site, with or without a web seal, to help them with the assignment. With it, they can look for information related to law, regulation and related cases. They can also apply for consultancy service by filling in a request form. During the process of the experiment, subjects were not asked to fill out any private information.

Step4: After finishing the assignment, subjects were given a web-based questionnaire designed to measure their perceptions on warranty perception, trust, and behavioral intention.

3.3 Data Collection and Operationalization

The treatment for the "web seal" construct had only two levels: with and without seal. The instruments of all other constructs were adapted from the literature, as shown in Table 1, revised to fit our research context. An interview with colleagues and a pre-test were carried out to ensure the meaning and wording of measured items for our targeted context and adhere to face and content validity for the compiled questionnaire. All items were anchored on seven-point Likert-type scales.

Table 1. Constructs and Measurement

Constructs	Source of Measurement Scales
Structural Assurance	McKnight et al. [11]
Warranty Perception	Erevelles et al. [9]
Trust	Bhattacharjee [6]
Behavioral Intention	McKnight et al. [24]

4 Data Analysis

Out of 110 subjects participating in this experiment, 104 usable responses were collected, with 54 and 50 responses respectively in the "with seal" and "without seal" groups. The remainder 6 responses were discarded based on a screening process.

4.1 Measurement Model

Confirmatory factor analysis was performed using LISREL 8.50 to assess reliability, convergent validity, and discriminant validity for the four measured constructs. Following Fornell and Larcker's [6] recommendation, we drop one item in the construct of warranty perception due to insignificant factor loading, and one item in the construct of trust due to low factor loading (0.37) as compared to the suggested 0.5 threshold. The factor loadings of all remaining indicators are significant ($p < 0.01$).

Table 2. Reliability and Convergent Validity

Construct (d.f.=141)	Cronbach's α	Composite Reliability	Average Extracted Variance
SA	0.85	0.94	0.80
WP	0.91	0.98	0.93
Trust	0.93	0.97	0.84
BI	0.90	0.95	0.75

Table 3. Covariance Matrix and Discriminant Validity (diagonal denotes square root of AVE of each construct)

	Mean	S.D	SA	WP	T	BI
SA	3.64	1.11	0.90			
WP	4.36	1.07	0.35	0.96		
T	4.51	1.04	0.33	0.85	0.92	
BI	3.83	1.17	0.45	0.65	0.79	0.87

Note: SA: Structural Assurance
 WP: Warranty Perception
 T: Trust
 BI: Behavioral Intention

The values of the Cronbach's α , composite reliability and average extracted variance for each construct are all above the thresholds, as shown in Table 2. The discriminant validity is also acceptable as presented

in Table 3, complying with Fornell and Larcker's [6] suggestion that the correlations between distinct constructs should be lower than the square root of the average variance extracted.

4.2 Hypotheses Testing

The structure model was analyzed using LISREL 8.50 for hypothesis testing. The fit indices of structure model are presented in Table 4. All the fit indices conform to the desired level recommended by Bentler [1]. The results of path coefficients and explained variances are presented in Fig. 3. All path coefficients are significant at the 0.05 level and the directions are consistent with the predictions. Thus H1 through H5 are all supported. The explained variances of warranty perception, trust, and behavioral intention are 35%, 76%, and 62%, respectively.

Table 4. Model Fit Indices of Structural Model

	Model	Desired Levels
Chi-square	225.93	--
Degree of freedom	161	--
Chi-square / d.f.	1.40	< 3.0
Standardized RMR	0.07	< 0.08
RMSEA	0.06	< 0.08
NNFI	0.95	> 0.90
CFI	0.96	> 0.90
IFI (TLI)	0.96	> 0.90

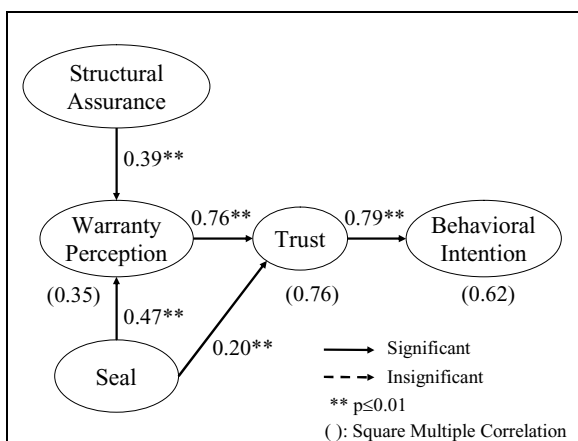


Fig. 3. Results of Structural Model

The values reveal that the antecedents of these three constructs in our research model are essential. As for the influence of seal on trust, the indirect effect: 0.36 (through warranty) is greater than direct effect: 0.20. This finding reveals that warranty perception is also a critical intermediary between seal and trust, even though the existence of direct effect of seal on trust.

5 Discussion

5.1 Academic Implication

The analysis results extend the understandings about the effect of trust transference and the critical role of warranty perception in the process of initial trust building. The importance of warranty perception presented in our results also adds to the signal theory.

Our study reveals three interesting findings. First, it shows that warranty perception is the major antecedent of initial trust, with 75% of variance explained. Trust is in turn determine behavioral intention, where more than half of the variances are explained. These are similar to the studies of McKnight et al. [11] and Bhattacharya et al. [2].

Second, the results demonstrate that consumers with more confidence in third party web seals of the web sites tend to trust this e-tailer. If consumers believe the public third party, they incline to have confidence in the web sites certificated by them.

Third, our finding reveals the intermediary role of warranty perception in the relationship of structural assurance, web seal and trust. It is consistent with the signal theory, indicating that consumers who believe in the assurance and warranty of e-tailers will tend to trust them. The indirect effect through warranty perception is greater than direct effect of web seal on trust. Therefore, the presence of a third party web seal and structural assurance results in higher warranty perception, and in turn results in higher levels of trust.

5.2 Practical Implication

Based on our findings, suggestions can be made for e-tailers to attract new comers. First, e-tailers may provide more structural assurance in web sites, e.g. protective legal notice, security technology (DES or SSL), privacy statements, etc. Yet, it is insufficient to display this information. They should let consumers believe in the protection of structural assurance in on-line transactions. Due to the phenomena of information asymmetry between buyers and sellers in e-commerce, buyers may not necessarily believe in all signals and cues related to the quality of product and services. Hence, e-tailers should pay more attention to develop trustworthy signals when they design the interface and content of the web sites. For instance, e-tailers may employ some trustworthy signals to give consumers hints about the reliability, creditability and quality of web site, such as information provided by trusted third parties, recommendations from experts and government institutions, and so on. This mechanism could enhance the effectiveness of signals in the web sites.

In the light of the first suggestion, we recommend e-tailers to rely on “third party web seals” as the critical factor for building initial trust. E-tailers could expand their credibility by the qualified certification issued by public third party. The seal is issued by the certified institution and could be revoked whenever vendors fail to conform to the regulations. Hence, consumers may raise confidence since they believe the sanction against vendors’ deception may be more serious than any other assurances. However, web seals are effective only if consumers understand the significance of each seal. E-tailers can spread the meanings of third party seals, promote the faith in web seals and reveal web seal in web pages. Once consumers build initial trust in e-tailers after visiting the web pages, they may be much willing to engage in transaction.

5.3 Future Research and Limitation

There are four potential limitations in this study. First, laboratory experiments stress on internal validity but result in questionable external validity. Even though the profile of online consumers is close to student subjects, the threat to external validity in our design could not be totally removed. In the future, this study could be duplicated in different settings so as to increase its external validity. Second, we only manipulated the presence and absence of third party seal and did not look into the issue of “level of treatment” of web seal effects. In the future, it could be further studied. Third, this study only focused on institutional antecedents of trust and control the effect of company brand name and characteristics. However, company reputation and characteristics may influence on initial trust building. An additional study could be held to pursue this issue. Finally, as a cross-sectional study, the real casual effects of this model could not be proved. This drawback could be pursued by other studies in the future.

References:

- [1] Bentler, P.M., *Multivariate analysis with latent variables: casual modeling*, *Annual Review of Psychology*, Vol.31, 1980, pp. 419-456.
- [2] Bhattacharya, R., Devinney, T.M. and Pillutla, M.M., *A formal model of trust based on outcomes*, *Academy of Management Review*, Vol.23, No.3, 1998, pp. 459-472.
- [3] Bhattacharjee, A., *Individual trust in online firms: scale development and initial test*, *JMIS*, Vol.19, No.1, 2002, pp. 211-242.
- [4] Doney, P.M. and Cannon, J.P., *An examination of the nature of trust in buyer-seller relationships*, *Journal of Marketing*, Vol.61, No.2, 1997, pp. 35-51.
- [5] Erevelles, S., Roy, A. and Yip, S.C., *The universality of the signal theory for product and services*, *Journal of Business Research*, Vol.52, 2001, pp. 175-187.
- [6] Fornell, C. and Larcker, D.F., *Evaluating structural equation models with unobservable variables and measurement error*, *Journal of Marketing Research*, Vol.36-10, 1981, pp. 1246-1255.
- [7] Gray, G.L. and Debreceeny, R., *New assurance services: the electronic frontier*, *Journal of Accountancy*, Vol.185, 1998, pp. 32-38.
- [8] Grazioli, S. and Jarvenpaa, S., *Perils of internet fraud: an empirical investigation of deception and trust with experienced Internet consumers*, *IEEE Transaction on System, Man, and Cybernetics*, Vol.30-4, 2000, pp. 395-410.
- [9] Kaplan, S.E. and Nieschwietz, R.J., *A web assurance services model of trust for B2C e-commerce*, *International J. of Accounting Information Systems*, Vol.4, 2003, pp. 95-114.
- [10] McKnight, D.H. and Chervany, N.L., *What trust means in E-Commerce customer relationships: an interdisciplinary conceptual typology*, *International Journal of Electronic Commerce*, Vol.-2, 2001-2002, pp. 35-59.
- [11] McKnight, D.H., Choudhury, V. and Kacmar, C., *The impact of initial consumer trust on intentions to transact with a web site: a trust building model*, *J. of Strategic Information Systems*, Vol.11, 2002, pp. 297-323.
- [12] McKnight, D.H., Kacmar, C. and Choudhury, V., *Shifting factors and ineffectiveness of third party assurance seals: a two stage model of initial trust in a web business*, *Electronic Markets*, Vol.14, No.3, 2004, pp. 252.
- [13] Nelson, P., *Advertising as information*, *Journal of Political Economy*, Vol.82, No.4, 1974, pp. 729-754.
- [14] Pavlou, P.A., *Consumer acceptance of electronic commerce: integrating trust and risk with the technology acceptance model*, *International Journal of Electronic Commerce*, Vol.7, No.3, 2003, pp. 101-134.
- [15] Shapiro, S.P., *The social control of impersonal trust*, *American Journal of Sociology*, Vol.93, No.3, 1987, pp. 623-658.
- [16] Zucker, L.G., *Production of trust: institutional sources of economic structure, 1840-1920*, in: Staw, B. M., Cummings, L. L. (Eds.), *Research in Organizational Behavior*, Vol.8, JAI Press, Greenwich, 1986.