

A Study on Security Factors on Online Shopping

- focus on internet bookshops -

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Abstract

Electronic commerce has provided another access for consumers to purchase products, but some researches have pointed out that there are difficulties for companies to do business on web. For lack of trust, many people not prefer purchasing through virtual channels. Based on the literature review, this study aims at empirically testing the impact of website design on individual trust in internet firms. From statistic analysis, we will conclude that security, interaction, and navigation functionality will affect on-line trust.

Keyword: Security, Website design, On-line Trust

1. INTRODUCTION

In Korea, about 15 million people have visited internet shops at least once, and among internet shops, book is the second most purchased items(NIDA, 2003). This can show the importance of internet bookshops among a variety of internet shops. At the same time, the sale increases rapidly. Because the discount rate of books sold in internet will not vary a lot, in this case, website mechanisms and trust in the web shops will play an important role in order to gain profit. This is the main reason why we choose internet bookshops as our research target.

There are many factors to determine the successfulness for an on-line business, such as trust, price, and deliver on time, but it is to say that trust is certainly the most important factor of all. Because the participants involved in on-line transactions can generally be divided into two-buyers and sellers, we can divide the antecedents according to the characteristics of those two parties. Besides, environmental factors could also influence trust. Therefore we categorize the antecedents of on-line trust into three: environmental factors, individual factors and enterprise factors. We will use enterprise factors in our research, because it is the only one category which can be controlled by company itself. Among all the

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enterprise factors, we used the factors related with website design and refine it into three constructs, which are security, interaction, and navigation functionality.

As we can see from the Table 1.1, almost all of the trust antecedents under the researches related to enterprises can be reconciled within these three constructs. The factors which are classified under "others" mostly are not related to our main focus on website design, for example, personal variables.

Table 1.1 Refining the Trust Antecedents from Enterprise Factors

Research	Security	Interaction	Navigation Functionality	Others
Koufaris & HamtonSosa, 2002			perceived usefulness, perceived ease of use	
Lee et al., 2000		communication shared value	comprehensive information	
McKnight et al., 2002	structural assurance of the web		perceived site quality	
Pavlou, 2001	privacy			
Morgant, 1994		communication		shared value,
Yoon, 2002	transaction security		navigation functionality	personal variables, website properties
Lee & Turban, 2001	effectiveness of security infrastructure, and third party certification		technical competence	

2. RESEARCH DESIGN AND METHODOLOGY

There are five variables in this research: security, interaction, and navigation functionality, are so-called independent variables; on-line trust is what we put as dependent variable; and trust propensity is the moderator.

Table 2.1 The Summary of Hypotheses

H1. Security has a positive effect on on-line trust.
H1 (a): The transaction security has a positive effect on on-line trust.
H1 (b): Personal security has a positive effect on on-line trust.
H1 (c): Third-party certification security has a positive effect on on-line trust.
H2. Interaction has a positive effect on on-line trust
H2 (a): Interaction between customers has a positive effect on on-line trust
H2 (b): Interaction between customers and enterprises has a positive effect on on-line trust
H3. Website's navigation functionality has a positive effect on on-line trust
H3 (a): Perceived usefulness of websites has a positive effect on on-line trust.
H3 (b): Perceived ease of use of websites has a positive effect on on-line trust.
H4. Trust propensity moderates the relationship between website design factors and individual trust in internet bookshops
H4 (a): Trust propensity moderates the relationship between security and individual trust in internet bookshops
H4 (b): Trust propensity moderates the relationship between interaction and individual trust in internet bookshops
H4 (c): Trust propensity moderates the relationship between navigation functionality and individual trust in internet bookshops

3. RESEARCH RESULTS AND ANALYSIS

3.1 Reliability Analysis

To test the reliability of the items asked in the research questionnaire, we used reliability analysis to ensure that the questions we designed for our questionnaire are highly representative of each variable. Throughout the test we find out that all of the Cronbach's α are greater than 0.728, meaning the measures have high reliability. The result of the test is shown in Table 3.1.

Table 3.1 Reliability Test

Constructs	Factors	Items	Cronbach's α
Security	Transaction security	4	.887
	Personal security	5	.901
	Third-party certification	3	.834
Interaction	Interaction between customers	4	.833
	Interaction between customers and enterprises	3	.728
Navigation Functionality	Perceived usefulness	4	.925
	Perceived ease of use	3	.924
On-line Trust		4	.891
Trust propensity		4	.864

3.2 Regression Analysis for On-line Trust

Linear regression was used to examine the relationships between independent variables and dependent variable. At significant level 0.05, hypotheses H1, H2 and H3 are all supported under the research model. The results shown that internet bookshops with better transaction security, personal security, third-party certification, interaction between customers, interaction between customers and enterprises, perceived usefulness, and perceived ease of use will lead to a higher customers' trust in them. The R^2 value for the three constructs are .440, .365, .449, meaning that the explanation ability is good for our dependent variable, on-line trust.

3.3 Stepwise Regression

Throughout stepwise regression we can find out the explanatory of the seven factors for our dependent variable. The results shown that perceived usefulness is the factor with the highest R^2 (.439). We may say that perceived usefulness has the highest ability to interpret on-line trust, which can explain at a .439 level. Continue adding transaction security can increase the R^2 value to .536. Interaction between customers and enterprises, third party certification, and personal security can increase the R^2 value by .044, .018, and .007 individually. Among all the five factors, the most important one for on-line trust is perceived usefulness(=.343 in

Model 5); the second will be transaction security(=.239); the following one is interaction between customers and enterprises(=.211). All five factors have the ability to explain the model for on-line trust at the R^2 value of .606.

3.4 Moderator Effect by Trust Propensity

We evaluated whether trust propensity will moderates the relationship between website design factors and individual trust in internet bookshops by using multiple regression and adding the interactive item between independent variable and moderator. The the results shown that trust propensity will not moderate the relationship between security, and on-line trust. Later, we can find out that trust propensity will not moderate the relationship between interaction, navigation functionality and on-line trust either.

4. CONCLUSION AND DISCUSSION

The results for the hypotheses tested are follows: ① Security has positive effect on on-line trust: this result is consistent with previous researches that security is an important factor in establishing on-line trust. ② Interaction has a positive effect on on-line trust: this result is consistent with the inference of "the better the interaction feeling for customers, the more familiarity for the internet bookshops", so that the interaction can lower customers' perceived risk and increase trust. ③ Website's navigation functionality has a positive effect on on-line trust: according to our research result, we know that the more usefulness of the web shop and the more easy to use of the website, the more will customers trust on it. ④ Trust propensity will not moderates the relationship between website design factors and individual trust in internet bookshops: throughout empirical research, we conclude that trust propensity will not moderate the relationship between website design factors and individual trust in internet bookshops.

Based on the research conclusion, we proposed a few points for internet bookshops to consider for gaining customers' trust. ① To increase security mechanism: we suggest that companies should work hard to provide a safety purchasing system and to make sure that customers personal information won't be easily accessed by hackers. Also, try to gain as much security certification and place in on website can make customers have more trust in the web shops. ② To enhance interaction system: the more the company gets to understand their customers and has better interaction with them, the more the customers will trust in the company. To send birthday presents or cards, to response customers' complaints, and to publish e-papers are useful techniques. Besides, to provide a place for customers to discuss their opinions can also enhance the trust in internet

bookshops. ③ To have a more powerful website for navigating: we suggest that companies should work on to provide a more easy to use and not too complicated navigating function. Also, companies should investigate about what kind of information or functions will make customers feel more useful.

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