

Significant Factors in E-Commerce Transactions

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Abstract— E-commerce transactions are faceless and potential customers are unable to touch and feel a product before making the decision to purchase or otherwise. Consumers have to trust the information that they get from the e-commerce website and the credibility of the vendor. Trust, therefore is an important factor in the success of an e-commerce company. In this paper we describe our study and findings on the security factors that influence the trust of potential customers. We ranked the security elements that induce trust and examined their relationship with their demographic factors.

Index Terms— consumers, information, factors e-commerce, product

I. INTRODUCTION

In Malaysia, e-commerce was first introduced in the 1970's by the banking sector [2]. The application was well received in 1981 when Malaysians were introduced to Automated Teller Machines (ATM) by banks [3]. Since then, the diffusion and acceptance of e-commerce continually evolved and upgraded after the Malaysia government introduced Multimedia Super Corridor (MSC) in 1996. The MSC is a national initiative by the Malaysian government to encourage people to utilize ICT in order to prepare themselves toward a knowledge-economy era. However, compared to developed countries, the utilization of e-commerce in Malaysia is not as encouraging. This is especially so when online transactions involve money and private information. Researchers have identified several factors that have contributed to this situation. One of these factors has been identified to be the *trust* factor.

- The absence of face-to-face contact between buyer and seller
- Lack of opportunity to examine directly the merchandise or the seller's premises
- Goods cannot be collected immediately upon payment

The lack of user trust in e-commerce merchants, e-commerce technology, and the social, financial and legal infrastructures of the e-commerce environment, poses a major challenge to the large-scale uptake of business to consumer e-commerce [10]. If individuals do not trust electronically-mediated interaction, the online world will lack business transactions, information exchange, dealings and creative works. An incredibly powerful business resource could remain under-utilized.

Our study attempts to investigate how trust amongst e-commerce users is influenced by security concerns and whether these security factors are influenced by demographic factors. In the next section, we describe the design and

delivery of our questionnaire and then we dwell straight into our data analysis and discuss our findings. We conclude with recommendations on how these findings can be used by vendors to improve their e-commerce websites and increase trust amongst users. The main question that we want to investigate is; "*Is security a factor that brings about or builds trust in e-commerce transaction?*"

II. THE SURVEY

A pilot survey was conducted to test on the suitability and accurateness of the questions in the questionnaire. A total of 210 final year undergraduate students studying in the Faculty of Information Management, Universiti Teknologi Mara (UiTM), Puncak Perdana Campus, Shah Alam, Selangor participated in the pilot study. The results revealed that requires some minor corrections and adjustment so that the questions are more focused on the research objectives. The corrected questionnaire was then distributed to all 158 public sector Information System Personnel (ISP) in the state of Selangor. Respondents were asked detailed questions about the most significant factors relating to their trust on electronic commerce transactions. The survey gathered information in the following categories:

1. Profile of the respondents.
2. The Internet usage.
3. Security factors and trust in online shopping
4. Privacy factors and trust in online shopping.
5. Familiarity factors and trust in online shopping.
6. Ease of use of e-commerce websites as a trust factor for online transactions.
7. Informational contents on e-commerce websites to create trust in online transactions.
8. General opinion on trust in online transactions.

The response rate was 77.0 (121 respondents) and the results obtained were summarized using the statistical software package SPSS version 12. A Likert scale used was from 1 (strongly agree) to 5 (Strongly disagree) and therefore factors with mean value below 3 are considered important. In this paper, we will discuss only on the information gathered in the third category; Security factors and trust in online shopping

III. E-COMMERCE USAGE

According to Salisbury [11] and Goodwin [12], security is a main issue influencing people to purchase online. Consumers generally are reluctant to give their personal financial information during an online transaction because they fear that it will be intercepted by hackers during transmission. To investigate the security factor's influence on trust amongst e-commerce users, we asked our respondents on the elements or aspects of security that would most likely make them trust e-commerce transactions. The questions that were raised to

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them include confidentiality, return policy, online payment, virus transmission and the presence of a relevant official body that monitors these transactions. The results obtained were summarized as illustrated in Table 1.

From Table 1, we can see that respondents have cited *Return policy is clearly stated* as the most important elements of security when conducting an e-commerce transaction. When a consumer decides to purchase a product or service online, they realize that they are depending on the information provided by the vendor on the website. There is no opportunity to feel and examine the product as one normally would do in conventional shopping. Consumers feel reassured when there is a clear written policy that they can return the product if they are not satisfied with it. At least, there is some form of guarantee from the vendor that their product is of quality and able to meet customers' satisfaction. A clear return policy helps consumers decide whether to purchase or otherwise.

The second most significant element of security factor is *Guaranteed Information Confidentiality*. Consumers are required to provide their names and contact information when conducting an e-commerce transaction. There have been cases whereby vendors sell this information to other vendors for marketing purposes. Consumers then will receive advertisements and unsolicited junk mails. Consumers consider this as an intrusion into their privacy. When vendors provide guarantee that all information provided are treated with confidentiality, consumers will feel reassured and make

the decision to proceed with the purchase of a product or service.

Virus protection during online transaction has been ranked third most important security element by the respondents. From their Internet surfing, respondents are aware that whenever they visited a well known e-commerce website, it is highly possible that cookies are planted in their computers. These cookies will then monitor the pages that they visited and the exchange of information that took place. There are also websites that transmit virus that attacks the consumers' computers if they decline the offer to purchase a product. Consumers consider this a serious threat. *Safe online payment* When there is an online payment involved, they need to provide information on their credit cards and also the security code that is associated with it. Consumers are afraid that the information they provide gets intercepted and the crooks will get to use their credit cards. Therefore a safe online payment method with high security features is crucial in building the trust of e-commerce users.

The lowest ranked element is *Official body to handle online transaction complaints*. E-commerce involves business transactions that are faceless and without the opportunity for the consumers to touch and feel the product that is being purchased. Consumers feel reassured if they are told that there is a division or unit provided by the vendor that is dedicated to handle all complaints and after sale service to the consumers.

Table 1: The Elements of Security Factor

Elements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std Deviation	Rank
Guaranteed information confidentiality	20.7	43.8	32.2	3.3	0.00	2.1818	0.79582	2
Return policy is clearly stated	18.2	51.2	27.3	3.3	0.00	2.1570	0.75286	1
Safe online payment	21.5	39.7	32.2	6.6	0.00	2.2397	0.86626	4
Virus protection during online transaction	23.1	35.5	36.4	5.0	0.00	2.2314	0.86372	3
Official body to handle online transaction complaints	24.0	35.5	31.4	9.1	0.00	2.2562	0.92143	5

4.0 Elements and Demographic Profile

Next, we investigate to see if there is any relationship between security elements as a trust factor and the demographic elements. We conducted cross tabulation analyses, correlation coefficients and t-test analyses.

The results of the analyses as shown in Table 2 reveal that male ISPs were more concerned about the confidentiality of information in online transaction as compared to female. 69.1 percent of the male respondents strongly agreed and agreed that it is important to guarantee confidentiality of information. However, only about 60.6 percent of the female respondents strongly agreed and agreed with this. The correlation

coefficient and t-test analysis indicated a strong relationship between gender and the confidentiality of information.

We then investigated the relationship between the hours used to surf the Internet per week and guaranteed confidentiality of information. Table 3 shows that the respondents within the group of 6 to 7 hours of surfing the Internet emphasized the importance of guaranteed confidentiality of information as compared to other groups. The results of the correlation coefficient and t-test analysis show a strong relationship between hours of surfing the Internet and guaranteed confidentiality of information.

Age and the guaranteed confidentiality of information have a strong relationship and this is demonstrated in Table 4. The results of the correlation coefficient and t-test analysis revealed that there is a significant value between those two dimensions. The cross tabulation analysis between the age

groups shows that the youngest age group which is 20 to 29 years old believed confidentiality of information is very important to create trust in e-commerce usage.

Table 5 presents the results of the cross tabulation correlation coefficient and t-test analysis between return policy and gender. The analysis showed that 72.7 percent of the male ISPs trust in e-commerce is based on clearly stated policy as compared to female ISPs at 66.7 percent. Clearly stated return

policy contributes to trust building in online transaction. The correlation coefficient and t-test analysis revealed that there is a strong relation between gender and return policy as a factor of trust in e-commerce.

We examined the relationship between return policy and academic qualification.

Table 2: Cross Tabulation between Guaranteed information confidentiality and Gender

Guaranteed information confidentiality							
Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Correlation Coefficient (rho)/ T-Test
Male	12 21.8%	26 47.3%	15 27.3%	2 3.6%	0 0.00%	55 100.0%	1.000/ 0.000
Female	13 19.7%	27 40.9%	24 36.4%	2 3.0%	0 0.00%	66 100.0%	
Total	25 20.7%	53 43.8%	39 32.2%	4 3.3%	0 0.00%	121 100.0%	

Table 3: Cross Tabulation between Guaranteed information confidentiality and Internet Surfing

Guaranteed information confidentiality							
Hour surf Internet per week	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Correlation Coefficient (rho)/ T-Test
Less than 1 hour	0 0.00%	2 28.6%	5 71.4%	0 0.00%	0 0.00%	7 100.0%	1.000/ 0.000
2-3 hours	2 11.1%	8 44.4%	8 44.4%	0 0.00%	0 0.00%	18 100.0%	
4-5 hours	8 25.8%	13 41.9%	8 25.8%	2 6.5%	0 0.00%	31 100.0%	
6-7 hours	15 23.1%	30 46.2%	18 27.7%	2 3.7%	0 0.00%	65 100.0%	
Total	25 20.7%	53 43.8%	39 32.2%	4 3.3%	0 0.00%	121 100.0%	

Table 4: Cross Tabulation between Guaranteed Confidentiality of Information and Age

Confidentiality of my information guaranteed							
Age	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Correlation Coefficient (rho)/ T-Test
20-29	16 20.3%	36 45.6%	26 32.9%	1 1.3%	0 0.00%	79 100.0%	1.000/ 0.000
30-39	8 22.2%	15 41.7%	11 30.6%	2 5.6%	0 0.00%	36 100.0%	
40-49	1 20.0%	1 20.0%	2 40.0%	1 20.0%	0 0.00%	5 100.0%	
50-60	0 0.00%	1 100.0%	0 0.00%	0 0.00%	0 0.00%	1 100.0%	
Total	25 20.7%	53 43.8%	39 32.25	4 3.3%	0 0.00%	121 100.0%	

Table 5: Correlation Coefficient/T-Test Analysis
Return policy is clearly stated

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Correlation Coefficient (rho)/ T-Test
Male	10 18.2%	30 54.5%	14 25.5%	1 1.8%	0 0.00%	55 100.0%	

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Female	12 18.2%	32 48.5%	19 28.8%	3 4.5%	0 0.00%	66 100.0%	1.000/ 0.000
Total	22 18.2%	62 51.2%	33 27.3%	4 3.3%	0 0.00%	121 100.0%	

DISCUSSION AND CONCLUSION

Findings of this study lead us to a list of recommendations that an e-commerce company can use as a guideline when designing the online system. The guideline indicates which security which security features an e-commerce site must have and their priority. The highest priority should be given to formulating a reassuring return policy. A well-worded return policy can influence a consumer to make an accurate decision whether to buy a product or not. A clear and precise return policy is capable of winning over the trust of potential e-commerce users despite involving faceless and 'no touching' business transactions. With a good return policy, consumers are reassured of a sound after-sale service. The next important requirement is the guaranty of information confidentiality. Surprisingly, it is not the 'Safe Online Payment' security element first. Many consumers have already conducted online business transactions before and they have made successful online payments. We can conclude that 'Safe Online Payment' is less worrisome as compared to 'Guaranteed Information Confidentiality'. Therefore e-commerce systems design must cater for this security requirement. The correlation coefficient, t-test and cross tabulation analyses between security elements and the respondents' demographic profile have helped us to understand the behavior and preferences of e-commerce users better. Respondents from the well educated group are more concerned with information confidentiality. This could be because they are more aware of the dangers of the abuse of private information. Similarly with the group of users that spend 6-7 hours surfing the Internet. Information confidentiality is the topmost security element of trust in e-commerce. When it comes to age, the youngest age group is the group that is most concerned with *information confidentiality*. We attribute this to their IT savvies. The group of respondents with a high income is most concerned with 'safe online payment'.

This study has led us to embark on another project which investigates the informational elements of an e-commerce website that influences trust of e-commerce users.

REFERENCES

- [1] Turban, E., King, D., Viehland, D., & Lee, J. (2006). *Electronic Commerce; A Managerial Perspective*, New Jersey. Pearson Education Inc
- [2] Pang, J. (1995). *Banking and finance in Malaysia*. Malaysia: Federal Publication Sdn Bhd.
- [3] Suganthi, Balachander, & Balachandran (2002). *Internet Banking Patronage: An Empirical Investigation of Malaysia*: ARRAY Development Publication.
- [4] Luhman, N. (1979). *Trust: a mechanism for the reduction of social complexity*. New York: John Wiley & Sons.
- [5] Corbitt, Y. B. & Thanasankit, T. (2002). *Trust and Consumers in B2C eCommerce*. Retrieved Date: 25 January 2005, from Goodwin, J., U. (2001). Privacy and security concern as major barriers for e-commerce: a survey study. *Journal of Information Management & Computer Security*, 9(4), 165-174.

- [6] Urban, G., L., Sultan, F., & Qualls, W., F. (2000). "Placing trust at the centre of your internet strategy". *Sloan Management Review*, 42 (1), 39-48.
- [7] Hoffman, D. L., Novak, T. P., & Peralta, M. (1999). *Building Consumer Trust Online*, *Communication of the ACM*, 42(4), 80-85.
- [8] Jones, S., Wilikens, M., Morris, P., & Masera, M. (2000). *Trust Requirements in E-Business: A Conceptual Framework for Understanding the Needs and Concerns of Different Stakeholders*. *Communications of the ACM*, 43(12), 81-87.
- [9] Shneiderman, B. (2000). *Designing Trust into Online Experiences*. *Communications of the ACM*, 43(12), 57-59.
- [10] Patton, M. A., & Josang, A. (2004). *Technologies for Trust in Electronic Commerce*. Netherlands: Kluwer Academic Publishers.
- [11] Salisbury, D., W., Pearson, R., A., Pearson, A., W. & Miller, D., W. (2001). *Perceived security and World Wide Web purchase*. *Industrial Management and Data Systems*, 101(3/4), 165-176.
- [12] Godwin, J., U. (2001). *Privacy and security concern as major barriers for e-commerce: a survey study*. *Journal of Information Management & Computer Security*, 9(4), 165-174.