LINKING CONSUMER TRUST PERCEPTION IN CONSTRUCTING AN E-COMMERCE TRUST MODEL

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Abstract: Trust issues is still considered as a main obstacle in the implementation of e-Commerce. Due to the increasing numbers of cyber crimes committed today, consumers are faced with doubt to engage in online shopping. As a safety precaution, consumers will take certain measures to protect their information by evaluating and assessing these websites trustworthiness before an actual purchase occurs. This paper describes a model that examines the elements related to online consumer behavior and to investigate this behavior towards building and increasing trust. The applicability of the model was tested in attempt to view consumers' acceptance towards the model and its component. The findings indicate the respondents are aware of the trust issue surrounding e-Commerce implementation as they accept and agreed with the model and its components.

Keywords: Consumer behavior, e-Commerce, Online, Internet Shopping, Trust

1. INTRODUCTION

E-Commerce is a valuable asset that emerged as a result from the Internet evolution. It allows corporate organization and business enthusiasts to carry out their business without the barrier of time and distance. The Internet, which upon e-Commerce is based, is becoming an important means for handling complex processes that governs day-to-day operations and among these operations is in the area of sales and marketing. The true potential of the Internet is now being exploited at a higher rate as a medium of selling and purchasing goods [8]. Businesses are searching for various methods to promote and sell their product effectively and a better way to do it is by using the Internet and e-Commerce websites. There are numerous benefits that can be associated with e-Commerce in terms of increasing sale, reducing

operational cost and effectively manage marketing strategies but there are also daunting challenges that may jeopardize the growth and future direction of e-Commerce.

Consumer trust is a vital element to the success of e-Commerce implementation [13]. It is widely agreed that e-Commerce can only become a broad success if the general public trusts the virtual environment [21]. It is important to first understand how consumer behave and react when engaging in e-Commerce that ends up with trusting the website. By reviewing several studies related to consumer behavior and issues associated with it, it will narrow down the way in finding a clearer solution towards understanding the concept of online consumer behavior and trust. Consumers are the main players in the field of e-Commerce and their involvement in it will determine which businesses are at the top of the competition and which are at the bottom.

The rapid growth of the Internet is not only brings countless opportunities for businesses but also critical issues associated mainly with security and privacy. E-Commerce relies on the information that is transmitted through the Internet and if weaknesses in software systems have been detected by hackers and use them to their advantage, catastrophe may follow [9]. Businesses or specifically, Internet vendor will have to face the loss of their loyal consumers due to the lack of consumer trust towards them. Recently, cyber crimes are reported as one of the most committed crimes and the victims are online shoppers. Due to this situation, it affects consumers' perception and decision-making processes. Concerns arise about their privacy and personal information being misused by other parties. Until today, security and privacy issues in any technological-based domain especially e-Commerce are still undergoing research and development to identify the common issue that are haunting the security and privacy aspect in the development of e-Commerce sites. Furthermore, newly E-Commerce softwares are being developed based on the need to resolve this issue.

Various literatures have been published that provides understandable concept about consumer behavior [17,4,18,19], focused on the technological and economical aspect of a consumer profile [10,1,24], and understanding the basic concept of consumer's intention to purchase [3,5]. Although the context of consumer behavior has been explained in details throughout several literatures but there has been very little research available that provide practical and tested guidelines for Internet vendor to adopt into their e-Commerce website. This paper presents and looks into the aspect of online consumer behavior involving the characteristics that influence their intention to purchase and trust. In addition, it presents a model that has been developed, drawing from the findings of e-Commerce research in the area of consumer behavior and trust in e-Commerce. At the end, this paper presents some encouraging results on the survey that was conducted by selecting several online shoppers to validate the

2. LITERATURE REVIEW

2.1   Basic Concept of Consumer Behavior

This paper describe about the development of a trust model that takes into account consumer behavior aspect. Understanding the basic concept of consumer behavior can lead to exploring criteria or element that might influence their trust formation and increase trust, and also the process of making a decision. They are several definitions coined by renowned scholars in the field of consumer behavior. Among those are [18], where they viewed customers as one entity that play it part in two context and define it as the mental and physical activities undertaken by household and business customers that result in decisions and actions to pay for, purchase, use products and services. A customer can play one or all three of the following roles: (1) a buyer (i.e. selecting products), (2) a payer (i.e paying for a product), or (3) a user/consumer (i.e using or consumer a product). Their definition of consumer behavior includes both mental and physical activities. Examples of mental activities are assessing the suitability of a product or service brand, making inferences about a product or service's qualities from advertising information, and evaluating actual experience with the product. Physical activities include visiting stores, searching for information on the Net, talking to salespeople, and issuing a purchase order.

According to [17], consumer behavior refers to the behavior that consumers display in searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs while [18] gave a definition that is more sensible in the context of consumer behavior as a process, where they define consumer behavior as the study of the process involved when individuals or groups select, purchase, use, or dispose of products, services, ideas and experiences to satisfy needs and desires. These definitions explain about the actions (purchase, use, etc) and process (from actions to satisfying needs) that a consumer involved in while engaging in business activities to achieve a common goal (satisfying needs).

From these definitions, it is found that satisfying needs are the main goal to be achieved and without any doubt, buying from a physical store would expect to achieve those goals. Trust might not be the problem in this kind of situation because in the real world environment, consumer can experience the item physically and if they are satisfied then they will purchase the item. Furthermore, an electronic transaction has numerous disadvantages and it involved a lot of risk rather than normal or traditional transaction.

2.2 Online Consumer Behavior and Trust

Consumer trust may be even more important in electronic, "cyber" transaction than it is in traditional, "real world" transactions [5]. The authors defined online consumer behavior as "the process of performing actions (search, purchase, sell, etc) by a consumer while engaging in online trading activities that satisfy their needs and intentions. There are few research conducted that emphasizes on online consumer behavior that leads to building online trust. Most of these researches have come out with a model that presents consumer behavior on the web.

A model presented by [22], shows the basic consumer behaviors, adjusted to fit the e-Commerce environment. According to this model, the purchasing decision process is triggered by a customer's reaction to stimuli. The process is then influenced by the buyer's characteristics, by the purchasing environment, by the relevant technology, by the EC logistics, and by other seller-controlled factors. A theoretical framework for consumer attitude and behaviors on the Web proposed by [6] shown that shopping enjoyment and perceived control as attitudinal variables that directly affect online consumer behavior. The results also show that customers' product involvement can have a significant impact on their on-line experience. For new customers, involvement is less important, and the novelty of the Web site can prove sufficiently interesting even if the customer is not as involved in the product or service.

However, for repeat customers, novelty quickly wears off, and product involvement is more important in increasing shopping enjoyment. This relationship seems to increase with the number of past visits to the Web store. Table 1 summarizes some of the research conducted in the context of consumer behaviors and several key to trust attributes found.

Table 1: Summarized research paper on consumer behavior and trust

Author	Key Content	Consumer Behavior	Key To Trust Attributes
McKnight & Chervany (2001)	Trust is based on disposition to trust, institutional based, and trust in vendor.	Purchasing, cooperating, and information sharing.	Privacy policy, 3rd party seals, interacting with customers, reputation building, links to other sites and guarantees.
Koufaris, Kambil and Labarbera (2001)	Trust is based on individual factors and website factors.	Unplanned purchase and intention to return.	Internal search engine, navigation, interface, layout, classification of product, product presentation, on-click shopping cart, music, color and customer review.
Pennanen (2005)	Shows how consumer trust is formed before a consumer engaged in a relationship with e-vendors	Consumer characteristics	-
Chen and Barnes (2007)	Investigation on how online consumers develop their initial trust and purchase intention.	Initial trust, purchase intention	Interaction, company size, willingness to customize.
Kim, Ferrin & Rao (2007)	Provide a basic theoretical framework to study the importance and effects of trust and risk antecedences to consumer purchasing decisions	Intention to purchase, actual purchase	Third party seals.

2.3 Consumer Characteristics

When engaging in e-Commerce, consumer behavior and trust is influenced by their personal characteristics. These characteristics might change their process of making decision whether to purchase from the website or not. It can also reduce their intention to purchase and this usually occurs when they visit an unfamiliar website. When this situation occurs, they depend on their personal characteristics to evaluate the trustworthiness of the website. According to a model developed by [16], several consumer characteristics such as culture, personality, demographic, experience, personal value and psychographics influenced consumers' dispositional trust. Both [16] and [22] argue that personal characteristics have a significant influence on consumers' behavior and trust.

The authors identified that there are four characteristics to be relevant to this study, which are personality, experience, educational background and computer literacy. Personality is an important element pointed out by several scholars in terms of having a high influence. Behavior and personality are inter-related where different personality shows different

behavior and reaction. A study conducted by [23] on understanding personality that affects consumer behavior and trust in e-Commerce indicates that there is some evidence that different personalities attribute different importance levels to each of the trust features presented.

Experience is one of the antecedents of building online trust. For consumers that have been using the Internet to search for information, engaged in many e-Commerce activities and have a strong relationship with web merchant, it is easier for them to identify which website can be trusted. For new online shoppers, experience and knowledge can be gain by interacting with past customer. looking into customer feedback and testimonials and other method that are provided by web merchant [13]. In terms of trust formation, consumers can ask opinions or experiences from other consumers to evaluate the trustworthiness of e-Commerce [16]. According to [12], consumers' disposition to trust changes during the experiences of life.

Apart from experience, educational background has a huge impact in communicating and increasing trust. Most Internet studies agree that the on-line population is relatively younger, more educated, and wealthier than the general population and most studies of on-line shopping behavior agree that on-line shoppers are better educated and wealthier. [10]. Computer literacy also affects the consumer behavior in term of gaining knowledge and confidence to shop online [13]. According to [10], technological savvy plays an important role in consumer behavior related to building the trust of on-line shoppers. People who are technologically savvy have more experience with the Internet and consequently have the know-how to gather information on e-Commerce they are considering for business transactions.

2.4 Intention to Purchase and Initial Trust

The process of making decisions and end up with purchase is an act of response to a problem [19]. When a consumer sees a significant difference between his or her current state or affairs and some desired or ideal state, problem recognition occurs. Once a problem has been recognized, consumers require adequate information to resolve it and this is when consumer search for information through every resource available including the Internet. For instance, if a consumer needs to buy a computer for his or her household, he or she will search for possible information and when those information or product meet the requirements, an intention to purchase is initiated. Online transactions can be considered to consist of three key steps: information retrieval, information transfer, and product purchase [15]. The information retrieval and exchange steps are regarded as intentions to use a web site; however, product purchase is more applicable to an intention to transact with a web site [15]. A study conducted by [5] suggests that a consumer's trust directly and indirectly affects his or

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hers purchasing intention and shows that a consumer's perceived risk reduces the consumer's intention to purchase.

Initial trust in the context of this study refers to the development of first impression of trust towards an online site. This kind of trust developed due to the existence of uncertainty risks and control mechanisms used by the site as preventive measures from the invasion of privacy. Higher degrees of online initial trust and familiarity with online purchasing stimulate higher degrees of consumers' purchase intentions; familiarity with online purchasing reduces consumers' perceived risks, brings positive attitudes in purchase intentions, and eases purchase decisions [3]. When consumers' initial trust exceeds the perceived risk and perceived control of their personal threshold, consumer is willing to take part in a risky relationship [16].

2.5 Web Merchant Characteristics

The Business-to-Consumer (B2C) concept in e-Commerce refers to the involvement of an organization (web merchant) that market and sells its product or services to a buyer, which is the consumer. Based on this concept, the business and consumer relationship must overcome all the risks and trust, in order for a transaction to happen and ends up with the consumer trusting the e-Commerce website which is the representative of the web vendor. In a normal or brick and mortar store, consumer can directly evaluate the item that they are going to buy but unlike this kind of business, an online business involves far greater risks.

Overcoming the perceived risks threshold is not an easy task and there are certain criteria that consumer assess and among them is the web merchant's characteristics. There are three dimensions of web merchant described by [11], which are ability, benevolence and integrity. Many scholars have adopted this dimension into their research to provide a better understanding about the concept of trustworthiness. The ability of a merchant is reflected in its ability to handle sales transactions and the expertise to generally conduct business over the Internet [2]. Benevolence means that one believes that the other party cares about one and is motivated to act in one's interest. Consumer can be sure that the web merchant will act in consumer's interest rather than their own [16]. Integrity refers to the consumer perception that the web merchant acts in an honest way and take into account an accepted set of principles and standards [12,20].

3. TRUST MECHANISMS TO BUILD ONLINE TRUST

There is a strong relation between consumer trust and security aspects that govern the whole transaction processes in an e-Commerce website. As a new form of commercial activity, e-Commerce involves more uncertainty and risks that traditional commerce because they are less well known to consumers. Factors that are affecting trust in e-Commerce include security risks, privacy issue and lack of reliability e-Commerce processes in general [14]. A consumer cannot monitor the safety and security of sending sensitive personal and financial information [8]. Online business organizations should search for high-tech security mechanism to protect itself from intrusion and also protect it customer from being indirectly invaded. There are two lines of defense for e-Commerce, which are technology solutions and policy solutions [7]. A great deal of progress has been made by both private security firms, corporate and home users, network administrators, technology firms and government agencies to overcome and reduces the issue of security breaches and invasion of privacy since the past few years. There are also several technologies and mechanisms that focus on building trust and provide a safety online business transaction in the market today.

Several common trust mechanisms proposed by [13], which are divided into 6 categories, which are Technology for Securing Communication Channels, Interacting with Customer, Stating a Clear Policy, Professional Design, Third Party Services and Vendor's and Product Information. Table 2 shows the common trust mechanisms and technologies pointed out by previous studies to integrate trust in online environment.

Table 2: Trust Mechanisms

Categories	Mechanisms or Technologies
Technology for Securing Communication Channels	• Secure Socket Layer (SSL) • Secure Electronic Transfer (SET) • Secure HTTP (S-HTTP)
Interacting with Consumer	• Customer Feedback • User Testimonials • Reference from Past Users
Stating A Clear Policy	• Privacy Statement • Security Policy
Utilizing Professional Design	• Graphical, Color • Symmetric Framework • Personalization • Easy to use Navigation
Acquiring Third Party Services	• Trust seal programs • Digital certificate • SSL verification
Accurate Vendor's and Product Information	• Physical Location of Company • Company Contact Information • Product Details, Pricing & Quality

4. THE PROPOSED MODEL

The model proposed in this study in shown in Figure 1. The model is divided into 2 thresholds, the consumer threshold and the web merchant threshold. Base on the model, consumer intention to purchase is influenced by 4 personal characteristics. When a consumer visits an unfamiliar website, the initial trust existed due to the uncertainty of risks and control and the perceived risk threshold is exceeded, consumer will then explore and evaluate the website's trustworthiness. If online trust is built, it will result in actual product or service purchase while if the website trustworthiness failed to build online trust, consumer will leave the website and search for other website. The web merchant can use the proposed trust mechanisms to enhance the website trustworthiness.
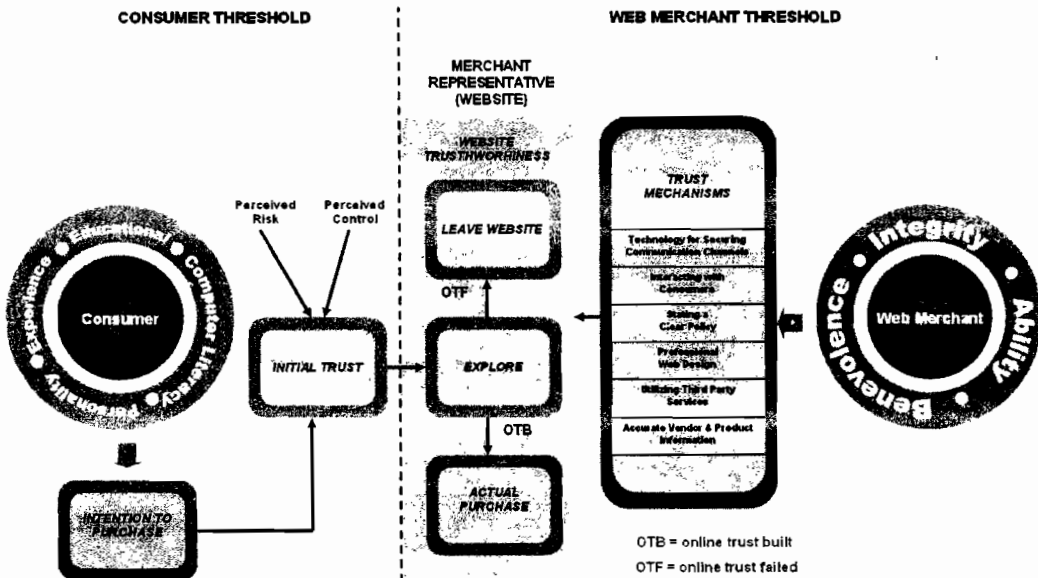

Figure 1: An E-Commerce Trust Model

5. TESTING THE MODEL APPLICABILITY

An online survey was conducted to view consumer's opinions and acceptance towards the elements contain in the proposed model. This survey is conducted using a website that offers free accounts for researchers and businesses. 19 statements were used ranging from demographic questions to questions related to the elements in the model. Respondents were chosen among those that have at least one year of online shopping experience. A number of 47 respondent participated and only 27 respondents have at least one year of buying

experience so the remaining 20 response were discard. Table 3 shows the statements that were used in the survey and the elements from the model. For the first three elements, respondents have been asked to answer the question based on five-point likert scale. Option 1 repsesent strongly disagree and 5 represent strongly agree. For the last element in Table 3, respondents have been asked to rate how important are the criteria based on five-point likert scale where option 1 for very not important and option 5 for very important.

Table 3: Consumer Validation and Acceptance Survey

Elements	Statements
Trust Mechanisms	1. Incorporating payment method that uses secure socket layer (SSL), secure electronic transfer (SEL) or any other securing technology such as PayPal, ePay and etc will make me trust the website. 2. Accurate and updated information about the web vendor (contact, physical location of company) and its product (pricing, quality, and brands) are crucial requirement to increase consumer trust. 3. The use of a reliable and advanced technology for securing communication channels can make the e-Commerce website be trusted. 4. Stating a clear privacy and security policy can make me trust the e-Commerce website. 5. Acquiring third party services such as trust seal programs, digital certificate, and etc will make me more confident to purchase a product from an e-Commerce website. 6. An e-Commerce website with a professional web design (good color, graphic representation and easy to use navigation) can be trusted more rather than a poor website design. 7. Interacting with previous buyers, reviewing user testimonials and looking into customer feedback can somehow increase my level of trust towards the e-Commerce website.
Initial Trust	8. According to this study, initial trust (when a person visits an unfamiliar e-Commerce website) is influenced by risks that are involved during a business transaction and improper control mechanisms used to protect the information that is being transferred. 9. When you visit an e-Commerce website for the first time, it is easy for me to trust the website straight away.
Internet Merchant Characteristics	10. A web merchant should have the following characteristics: A web merchant will act for the interests of both parties; a web merchant will act in an honest way, and the belief in the web merchant ability, skills and expertise within a certain domain.
Consumer Characteristics	11. Computer literacy 12. Buying experience 13. Educational background 14. Personality

6. ANALYSIS AND RESULTS

The summarized result of the survey is shown in Table 4. Since a five point likert scale is used in the survey, the neutral response is indicated by value 2.5 while a very positive response is 5. From the demographic questions asked, all of the respondents have a high education certificate with at least a diploma and most of them are in the group age of 25 – 34 years old (77.78%). Elements (customer feedback, educational background and personality) with high value of standard deviation indicate that there was a lot of variation in the answers while a low standard deviation would mean that most observations cluster around the mean. High standard deviation value (above 1) shows that respondents are uncertain about the importance of these elements in building consumer trust. As a conclusion to this survey, respondents agreed that most of the elements and component (mean > 3) in the proposed model are relevant to the author's perception about building consumer trust. Although the 3 elements that indicate a high standard deviation, their mean is still above average. This is a strong indication that respondents still agrees and accept all the elements in the proposed model.

Table 4: Summarized Results

Element	Num.	Mean	SD
Trust Mechanism	1	4	0.73
	2	3.96	0.76
	3	3.96	0.81
	4	3.74	0.81
	5	3.67	0.83
	6	3.41	0.93
	7	3.37	1.11
Initial Trust	8	3.56	0.58
	9	2.48	0.85
Internet Merchant Characteristics	10	3.74	0.90
Consumer Characteristics	11	4.56	0.64
	12	4.22	0.85
	13	3.81	1
	14	3.70	1.14

* Note: "Num." in Table 4 refer to list of questions in Table 3

7. CONCLUSION

This paper has reviewed the concept of consumer behavior and a model was also developed in attempt to study how consumer behave and react in relation to building and increasing trust when engaged in e-Commerce activities. The model presents the elements in

consumer and web vendor relationship where it is divided into two thresholds: consumer threshold and web vendor threshold. The mechanisms in the model can be use as a guideline for newly established organizations to step further in the competition by developing an e-Commerce website for the purpose of increasing sales and reducing operational costs. The results from the survey shows that consumer accept all the elements proposed in the model indicated by mean above the value of 3. This is a positive impact towards the study as consumers are aware of the issue that is related to e-Commerce and trust. Finally, the model presented in this paper contribute to the discussion of how to buid trust in e-Commerce website.

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