

## A STUDY OF E-TRUST IN ONLINE AUCTIONS

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### ABSTRACT

This study attempts to examine the antecedents and outcomes of e-trust in online auctions. Antecedents, technical and social bonds, and outcomes of e-trust were chosen in order to apply the concepts of relationship marketing to electronic commerce and to further develop this conceptual model in the context of online auctions by incorporating these factors into one model. A case has been made that in this conceptual model the concepts of technical and social bonds serve to significantly contribute to word-of-mouth and e-loyalty (behavioral and attitudinal) through e-trust. This study has revealed that technical and social bonds, with the exception of one technical bond (e.g., learning capability), have a significant positive impact on e-trust. E-trust also has a significant positive influence on word-of-mouth and e-loyalty. The implications of this study are that managers need to consider that e-trust, which is an important variable in online transactions.

Keywords: E-trust, online auctions, word-of-mouth, relationship marketing, electronic ecommerce

### 1. Introduction

An important effect of the continuing increase in the number of transactions in online auction sites is that web users have become more demanding [Walczak et al. 2006]. The increase in competition and the ease of moving from one web site to another has forced websites to provide better quality service. But, the traditional customer satisfaction paradigm is no longer sufficient, in a strategic sense, if a website hopes to retain its customers. To keep a competitive edge, it would seem that it would be wise for website's to begin to incorporate a relationship-marketing paradigm into their strategies. One of the important factors of relationship marketing is trust.

E-trust is considered important in e-commerce by most researchers [Bryant & Colledge 2002, Morrison & Firmstone 2000]. In the relationship marketing paradigm, trust is generally viewed as an important component for a successful relationship. Morgan and Hunt [1994] defined trust as the perception of "confidence in the exchange partner's reliability and integrity". McKnight et al. [2002] defined trust is an interpersonal determinant of behavior that deals with beliefs about the integrity benevolence, ability, and predictability of other people. This study is to apply the existing theoretical construct of trust to e-trust. Trust should be even more important in electronic customer relationship management (e-CRM) than in traditional CRM because of the paucity of rules and customs in regulating e-commerce [Wingreen & Baglione 2005]. In the context of e-commerce, there are literally dozens of definitions of e-trust [McKnight & Chervany 2001, Stewart 2003, Tan & Thoen 2001]. Some interest researchers do specifically define e-trust [Hampton-Sosa & Koufaris 2005, Lin 2007], and others conclude that e-trust as a social complexity-reducing mechanism that leads to a willingness to depend on an e-vendor will fulfill its commitment [Hwang & Kim 2007, Papadopoulou et al. 2001]. These studies are highly applicable to the present research, as they focus on the dimensions of e-trust in a specific field. It is necessary to understand the major factors of this phenomenon that will encourage web users to commit to the "purchase click" once they are online. Perhaps part of the reason for this slow development is that the nature of trust is generally conceived of as having an interpersonal quality that is not readily evident in the types of interactions that occur online, where the provider and customer are not interacting in the same place or even time. Due to the online interaction appears to be more of a mechanical interaction rather than one that is interpersonal, this study is more interested in mechanical trust than advancement in interpersonal interaction behind web portals designed to give trust in websites.

Yet the issue of e-trust in online interactions is important because this business context has done nothing but expand in recent years. Online auctions sites have become a commonly used market place through which buyers and sellers transact. E-trust must surely play a role because of anonymity, lack of control, lack of physical proximity, potential opportunism and inefficiencies in such transactions, albeit this role may be somewhat different than in traditional auction sites where bidding is conducted in person [Corbitt et al. 2003]. There has not been a very full explanation of customers' purchasing decisions in relation to e-trust [Jap 2002, Smeltzer & Carr 2003, Suter & Hardfesty 2005]. Since e-trust is a vital concern in this paradigm, it would seem to follow that the more that is known about how e-trust functions in online transactions, the better the decision-making of those concerned with running a profitable online business could be.

In recent years, the Internet has established itself as a new medium for e-marketing consumer. However, most web sites on the Internet today do not focus on building e-trust as part of an ongoing relationship with their customers. Many websites act merely as self-service catalogs. Not surprisingly, they convert few of their visitors into purchasers suffer low customers retention, primarily because they have failed to build e-trust.

Based on the theoretical discussion and the mechanisms in the production of e-trust, the issue of this research is: what are the determinants that cause e-trust in Internet-enabled e-commerce that significantly impact a web user's propensity to online auction and how can these be incorporated into a website. This study differs from prior research on the subject by extending e-trust in the following important contributions. The work is to develop and test a model that depicts how technical and social bonds affect e-trust. This has implications for website designers who can use such a model to better construct web sites that take into account the feelings of customers of online transactions. Furthermore, this study proposes, in the model, to explore how e-trust relates to relevant outcomes, such as word-of-mouth, behavioral e-loyalty, and attitudinal e-loyalty. The information from this aspect of the model can be used by e-marketing providers to better respond to the needs of their online customers in order to promote a longer lasting relationship than the common one-off transaction.

## 2. Theoretical background and hypotheses

In the e-shopping literature, some studies have highlighted e-trust as a central construct [McCole 2002, Urban et al. 2000]. Researchers have investigated how web companies, such as Jumpline.com and Komplex.com, have built e-trust through "seals of approval" and obtained good reputations. Pavlou et al. [2003] examine the role of institutional structures in building e-trust, which has been widely adopted by e-commerce research because e-commerce brings together organizational with no familiarity and similarity. Thus there is evidence of the important role of e-trust in the online environment [Kim & Benbasat 2003]. However, considerable ambiguity exists regarding the determinants and consequences of e-trust in the published research.

This study is concerned with the role of e-trust in online auction sites. The existing empirical evidence suggests that e-trust has a significant impact on auction outcomes, namely that with greater e-trust comes an increase in the number of transactions [Ba & Pavlou 2002]. E-trust is considered to perform two vital functions in this situation. It helps to reduce anxiety, which is accomplished through technical assistance. And, it provides a "social bonds" mechanism, which leads to better coping in the context of the "impersonal" type of transactions that occur online [Smeltzer & Carr 2003]. It is these online transactions that have been accused of destroying the "personalized" relationship in face-to-face transactions.

Figure 1 represents the conceptual model that is intended to explain the underlying processes through which improvements in technical and social bonds lead to higher levels of e-trust. It is then conceptualized that these higher levels of e-trust will ultimately lead to the desired outcomes of positive word-of-mouth and long-term e-loyalty relationships.

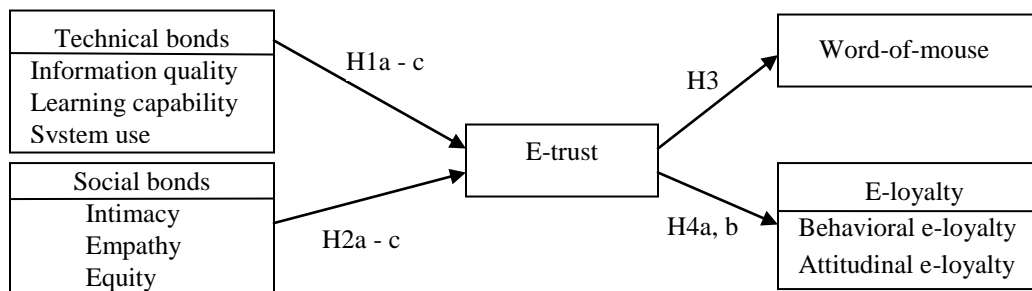


Figure 1. The theoretical model

### 2.1. Technical bonds

In the model presented here, technical bonds are conceived of as including information quality, learning capability, and system use [Liljander & Strandvik 1995]. Technical bonds are defined as the information technology provided by websites that customers use in the process of making transactions [Perry et al. 2002]. Through using the available information technology, the customer undergoes an experience which can establish a relationship, good or bad, with the website. It is through such experiences that bonds are formed. Information quality refers to the situation in which websites have some manner of technical support available for their product. In-time information, customer information, product information, and descriptions are all examples of information users can use to solve their problems in e-commerce settings. For example, one prerequisite of improving information quality is to profile web users and at the same time provide this profiling information so that every web user can obtain the information contained in his or her profile [Henczel 2004]. Lee et al. [2000] posit that web users will be more likely to obtain satisfaction after using high quality information provided by websites. Thus, where the information provided is sufficient, it is likely that web users feel they can safely buy a product because e-trust has been generated. In this case, e-trust appears to be generated by a higher quality of online profiling information that Internet shoppers can access.

In addition to information quality, another technical bond influence that has been theorized as playing a role in developing e-trust is "learning capability." Learning capability refers to the situation in which customers nurture and apply their capabilities via exploratory behavior on the Internet. This behavior may take place on websites that provide the necessary interactive learning tools. When these tools are provided, web users can enhance their own abilities- becoming quite proficient in all types of interactions on the Internet- while at the same time web hosts can gather information on how customers use their sites. Because interactions of this nature provide mutual benefits, e-trust is enhanced for both the web browser and the web host [Armstrong & Hagel 1996]. E-trust for the customer, then, seems responsive to the capability built into a web site that offers chances for learning. Thus, we argue the learning capability is also an antecedent of e-trust because it enables users to place their capabilities about the Internet into a control which clarifies the specifics of what they expect of web hosts.

The third component under consideration regarding technical bonds is system use which is operationalized by the web design [Liu & Arnett 2000]. One of the important factors concerning web design relates to how that content satisfies the needs of customers. Web design and web site quality is important for websites gain competitive advantages over other websites and attract more customers [Kang & Kim 2006, Lee & Kozar 2006]. Corbitt et al. [2003] argue that website's quality is important for the organization. The organizational image reflected by its website quality, which is hence critical to establish e-trust. Beliefs about websites' qualities including perceived information load, effectiveness of the website's interface, and informed in privacy guarantee. In order to measure different aspects of website design, these items must necessarily be specified. Such items include the transaction process in an overall sense, ease of use, privacy, and customer's testimonials. In the case where a customer completes a transaction on a certain website and his privacy is not being violated, this provides evidence that he or she trusts the system [Allen 1996]. Thus, it would seem to be the case that the more often a customer completes transactions on a given website, the higher is the level of e-trust of that customer. Based on the above theory concerning technical bonds, the following hypotheses are proposed:

**H1 a-c:** The higher the information quality, learning capability, and system use of the online auction user, the higher is his/her perceived e-trust.

### 2.2. Social bonds

Zeithaml and Bitner [2003] describe social bonds as referring to interpersonal relationships, for example a relationship between a specific service provider (e.g. a lawyer) and his client, or a relationship between personalized service providers (e.g. a health consultant) and his customer. Previous research [Morris et al. 1998, Perry et al. 2002] has proposed the existence of various social bonds, such as intimacy, empathy, friendship, benevolence, likeability, conflict, and equity. Social bonds can be regarded as a multivariate composed of numerous components reflecting the nature of relationships between companies and consumers [Berry 1995]. Since the parsimony rule makes it impractical to include all of these determinants in a single model, the following three categories, which seem to show the most promise, are considered in this study: intimacy [Pels 1999], empathy [Davis 2003], and equity [Michell et al. 1998].

Intimacy refers to the perceived "distance" of body, soul, and emotion among people [Barnes 1997]. Balance theory posits that people tend to develop a positive attitude toward those with whom they have some prior association [Heider 1958]. The more experienced the Internet user, the greater the opportunity they have motivated to nurture the intimate and empathic relationships with websites, then the more e-trust they will develop towards online auctions. Thus, the shorter the perceived distance between websites and users is, the more likely it would be that the relationship is seen as intimate [Nielsen 1998]. The designers of online auction sites should take great care

in trying to anticipate the frequency of customer interactions at each possible point of contact. This anticipation might establish and maintain the sharing of information and trustworthiness of websites by helping to lessen the perceived distance between web user and website. Moreover this intimacy would seem to be helpful for improving e-trust in online auction sites [Zhang 2001].

In an economic sense, empathy means that a firm understands a customer's concerns and performs in the best interests of the customer [Phillips 2004]. By understanding actual customers' preferences and behavior, web companies can more closely perceive their customers' emotional makeup and meet their needs. With empathy of this type, a web company can also move to better meet the needs of their customers. Where customers sense this empathy, they will derive higher levels of satisfaction. In this way the customer will in all probability develop a sense of e-trust- an e-trust that the company, an online auction site, is working in the best interest of the customer. Where empathy is perceived as higher, then, customer e-trust is also likely to be higher.

The biggest difference between traditional and online auctions is that due the nature of virtual interactivity, the availability of information is asymmetrical between the seller and the buyer. In the online auction, the buyer cannot, in person, view the object up for bid. In order for the buyer to submit a bid, the buyer must reach the point where he or she decides that fairness is present in the transaction. An important relational construct, considered by relationship marketing literature, is the equity perception. Equity is derived from proportionality. Equity refers to an exchange of the outputs (benefits) and the inputs (costs and sacrifices) [Gundlach & Murphy 1993]. The application of this definition of equity to online auction research shows that this perception can negatively influence the customer's decision, or influence it positively, where the proportion between inputs and outputs favors the customer or is viewed as fair. In other words, equity is arrived at when the customer decides that the product is equal to the price. This can only happen when the dyadic information available to the buyer is enough so that a sense of "equilibrium," or equity, exists. Michell et al. [1998] asserted that the perception of equity in a transaction is helpful in producing e-trust. Hence:

**H2 a-c:** The higher the perceived intimacy, empathy, and equity of the online auction site by the online auction user, the higher is his/her perceived e-trust.

### 2.3. The outcomes of e-trust

From a web user's viewpoint, e-trust reduces the uncertainty that may be created by the online transaction. Where such e-trust exists, this should be demonstrable by some subsequent behavior. In line with this rationale, the present model proposes that e-trust results in word-of-mouth and e-loyalty. Research on traditional markets consistently reports that word-of-mouth is the most effective form of communication [Wangenheim & Bayon 2004]. However, web users obtain and exchange information from chat rooms, personal homepages, and discussion forums, all of which can be termed "word-of-mouth." Hu et al. [2006] examined that consumer's online reviews, which have dramatically increased the scale and scope of word-of-mouth communication, have become one of informational source. Word-of-mouth communication is a powerful force influencing future buying decisions, particularly when the service delivered is of high risk in online auction. Because web users can and do openly discuss all types of information about a website, this leads to the emergence of word-of-mouth. This may take the form of a discussion about an auction bid, where a potential bidder may discuss an auction price with another, unknown web user with auction experience [Gelb & Sundaram 2002]. In the case where this web user has already built up e-trust in a particular online auction site, the user is likely to recommend this website to the potential bidder, or others, through word-of-mouth. In accordance with this concept, the present research proposes the following hypothesis:

**H3:** Web users' e-trust in online auctions is positively related to word-of-mouth.

In defining loyalty, the investigator first has to differentiate between loyalty and e-loyalty. In general, loyalty means repeat purchasing behavior and commitment to future purchasing. However, e-loyalty lacks the same type of personal interaction because the exchange is a virtual one. Therefore, e-loyalty refers to repeat visits to a specific website [Reichheld & Schefter 2000].

Evolving out of early definitions that were solely behavioral, web user e-loyalty today is usually viewed as comprising both behavioral and attitudinal components [Gefen 2002]. Thus, e-loyalty can be further differentiated into two types: behavioral and attitudinal. Behavioral e-loyalty refers to purchasing frequency. When web users frequently buy products from one online company, and when they increase the volume of their purchases from this company, they are indicating behaviorally that they are loyal. E-trust is often accompanied by strong behavior [Morrison & Firmstone 2000]. In the situation where web customers feel that a website has satisfied their needs and cares about their satisfaction, thus establishing e-trust, web users will visit that site at a higher rate than if less or no e-trust existed [Milne & Boza 1999, Urban et al. 2000]. It would seem to follow then that when web customers believe that a website satisfies their needs and cares about their satisfaction, e-loyalty behavior should emerge which would increase the amount of e-shopping at that site's online auctions. In such circumstances, e-loyalty will likely be higher than when a consumer does not trust an online auction site.

Attitudinal e-loyalty toward an online auction service is not the same as behavioral e-loyalty. The former represents a psychological evaluation process of a product; the latter represents the performance of a particular behavior, such as buying a product. If web users like or even trust a web company, they will generate an attitudinal e-loyalty. Attitudinal e-loyalty, as we conceptualized it, focuses on the customer's preference for one website over others and their dispositions toward websites. Social exchange theory argues that people form exchange relationships on the basis of trust [Homans 1958, Houston & Gassenheimer 1987]. The central element of exchange relationship is the mutual exchange of values. On the Internet, customers typically perceive higher risk than that of in a traditional environment. Therefore, e-trust is the preliminary condition to customers' online auction participation; furthermore, e-trust is a necessary condition if e-loyalty is to occur [Chaudhuri & Morris 2001]. This leads to the following two hypotheses:

**H4a, b:** Web users' online auction e-trust is positively related to the dimensions of behavioral e-loyalty and attitudinal e-loyalty.

### 3. Method

#### 3.1. Data collection

Two online auction sites (eBay and Yahoo!) were selected to test the proposed model. There were several reasons for choosing these two sites. First, Fred et al. [2004] estimated \$300 billion in trade on eBay for the year 2005. Second, Yahoo! is consistently one of the, if not the, busiest sites on the Internet with a very large auction site as well. Because of the high numbers of users for both of these sites, it was felt that such users would provide an appropriately large sample, as well as representing a good cross section of web users. Owing to a lack of assistance from eBay and Yahoo!, the researchers could not obtain a sample for survey distribution purposes directly. To overcome this, the researchers registered as members in various discussion rooms, BBS, and chat rooms. The interest was to discover users of online auctions eBay and Yahoo! in order to distribute questionnaires. The questionnaires were then submitted and collected online.

Data collection used Snowball sampling and Judgment sampling [Carson et al. 2001, Patton 1990]; respondents who were willing to participate and transfer the questionnaire to other respondents could receive a coupon for their cooperation. Some interested web users linked to the researchers' homepage and filled out the questionnaire, while others received the questionnaire via e-mail. Questionnaires were accepted from January of 2005 to October of 2005. Total respondents numbered 337. The data from 310 questionnaires was used in the analysis because 27 of the questionnaires had not been filled out completely.

Respondents varied greatly in age (under 20, 10.7%; 21-30, 70.6%; 31-40, 16.5%; over 40, 2.2%) and were engaged in a variety of occupations, including law, medicine, teaching, and blue-collar labor. Those with less than one year of online experience comprised 29% of the sample, while those with more than 3 years of online experience comprised 35.8%. 7.7% had had only one online auction experience, 19.7% had had 2-5 experiences, 11.3% had had 6-9 experiences, and 61.3% had participated in more than 10 auctions. 38.1% of the respondents were male and 61.9% were female.

#### 3.2. Measurement

The study commenced with a qualitative research phase. During this phase, web users were arbitrarily selected from discussion room and BBS to know whether they had been using the online auction. Twenty-five web users out of all who were contacted were asked to participate in discussion room. The purpose of this discussion was to understand the underlying issues of online auction. A questionnaire was developed on the basis of available literature and qualitative research including items designed to measure technical bonds, social bonds, which comprised the antecedents of e-trust; word-of-mouth and e-loyalty, which served as the outcomes of e-trust. All items were statements and subject responses were offered on a Likert 5-point scale ranging from strongly disagree (1) to strongly agree (5). Secondly, to access the face validity of items, the draft questionnaire was sent to a university marketing professor who is expert in the area of e-marketing. The questionnaire was also sent to two managers of eBay and Yahoo! to ensure linguistic and thematic clarity. Finally, the questionnaire was also emailed to twenty-five web users for the pretest. After receiving comments for minor modification to the items, a final questionnaire was finished.

Each item was pre-tested and deemed reliable because all of the multiple indicator measures exceeded the 0.7 benchmark level. In addition, evidence of construct validity was present as the pattern of correlation among the variables conformed to levels considered acceptable according to theory [Kerlinger 1973]. The Appendix contains sample items of the questionnaire that was used in this study.

Using exploratory factor analysis with a Varimax rotation, the reliability of the constructs with Cronbach's alpha coefficient is presented in Table 1. After deleting ten (factor loading < 0.7) of the original sixteen, six items were found for technical bonds. The factor loading of six items was larger than 0.735 and Cronbach's alpha was

larger than 0.733. As expected, the eight items for social bonds were identified. After removing 4 items, the study measured social bonds using eight items, which according to Cronbach's alpha were satisfactory at above 0.89 and likewise for factor loading, which ranged from 0.786 to 0.9097.

Factor analyses by Garbarino and Jonson [1999] and Doney and Cannon [1997] revealed two measurements of e-trust. Since the reliability of Doney and Cannon's measurement was low ( $< 0.6$ ) we excluded it from our final analysis. The factor loading was above 0.84 for the remaining Garbarino and Jonson's measurements and was deemed acceptable. Similarly, in factor analyses of word-of-mouth [Kiecker & Cowles 2002], three items had a high factor loading ( $>0.81$ ) and Cronbach's alpha 0.89. This investigation identified two more dimensions from other literature [e.g., Lee et al. 2001]. The first factor focused on the dimensions of behavioral e-loyalty, the second on attitudinal e-loyalty. Overall, the factor loading and reliability were good.

Table 1. Factors of all variables in the model

Sub-construct dimension	Label	Eigenvalue	Factor loading	Cronbach alpha	Average variance extracted	Origin
Information quality	Tech 2	2,230	0.814	0.7338	0.85	Liu and Arnett [2000]
	Tech 3		0.801			
Learning capability	Tech 7 Tech 6	1.684	0.802 0.739	0.6018		
System use	Tech 14 Tech 13	2.493	0.789 0.735	0.7426		
Intimacy	Soc 2	2.708	0.879	0.9363	0.75	Rackham et al. [1997] Michell et al. [1998] Zhang [2001] Perry et al. [2002]
	Soc 3		0.864			
Soc 4	0.877					
Empathy	Soc 6	3.041	0.906	0.8943		
	Soc 7		0.888			
Soc 5	0.786					
Equity	Soc 10 Soc 12	3.089	0.907 0.882	0.9010		
E-trust	Tru 5 Tru 2	4.056	0.851 0.845	0.9025	0.90	Doney and Cannon [1997] Garbarino and Johnson [1999]
WOM	WOM 2	3.054	0.893	0.8963	0.74	Kiecker and Cowles [2002] Gelb and Sundaram [2002]
	WOM 4		0.878			
	WOM 1		0.817			
Behavior e-loyalty	Eloy 5	4.794	0.884	0.9218	0.75	Chaudhuri and Morris [2001] Lee et al. [2001]
	Eloy 4		0.857			
	Eloy 6		0.846			
Attitudinal e-loyalty	Eloy 8	1.716	0.926	0.8340		
	Eloy 9		0.912			

### 3.3. Data Analysis

After eliminating items that loaded on multiple constructs or had low item-to-construct loadings, we found that confirmatory factor analysis (CFA) model provides an acceptable five-factor model. Goodness-of-fit statistics are  $\chi^2 = 188.49$  ( $p=0.00$ ),  $df=53$ ,  $RMSEA=0.055$ ,  $AGFI=0.88$ , and  $GFI=0.923$ . All loading are significant. The fit statistics are as expected. Thus, the measures demonstrate adequate convergent validity. With the constraint of only a moderate sample size and a parsimonious rule, we also tested the validity of three-dimensional nature of technical bonds and social bonds, respectively; two-dimensional nature of e-loyalty through a second-order CFA. All three path coefficients between the higher-order constructs and the three dimensions are significant at  $\alpha=0.05$ . The results are  $\chi^2 = 132.198$ ,  $df=36$ ,  $CFI=0.987$ , and  $RMSEA=0.062$ . Thus, we deemed our second-order CFA of technical bonds, social bonds, and e-loyalty adequate for the purpose of this study. To assess discriminant validity, Gaski [1984] suggests that when correlation between one composite scale and another is not as high as the coefficient alpha of each scale, then discriminant validity is present. The results of the correlation analysis of the constructs can

be seen in Table 2. It is quite obvious that alpha is higher than the correlation coefficient for each of the constructs. Thus, discriminant validity is present in the study.

Table 2. Descriptive statistics and correlation matrix for the theoretical constructs

	Min	Max	Mean	S.D.	1	2	3	4	5
1. Technical bonds (6 items)	1.63	4.49	3.95	0.72	0.693				
2. Social bonds (8 items)	1.98	4.98	3.46	0.78	0.468	0.911			
3. E-trust (2 items)	1.05	4.07	3.62	0.63	0.289	0.313	0.903		
4. Word-of-mouth (3 items)	1.51	4.26	3.96	0.81	0.504	0.418	0.288	0.897	
5. E-loyalty (5 items)	1.37	5.00	4.05	0.88	0.461	0.425	0.303	0.504	0.878

\*The first four columns are descriptive statistics of each constructs.

\*Diagonal entries are Cronbach’s alpha coefficients.

\*All others are correlation coefficients in which are significant at the 0.01 level (2-tailed).

Model testing was performed using the AMOS 5.0 [Arbuckle 2003] software package. The first step to test the measurement model was the examination of indices of fit. The Chi-square statistic for the measurement model was statistically significant ( $\chi^2_{(182)} = 220.964, p = 0.026$ ), thereby suggesting that the model was not entirely adequate. However, other fit measures have proven to be more useful. The relative Chi-square ( $\chi^2 / df$ ), GFI, AGFI, and NFI values of 1.214, 0.941, 0.917, and 0.947 are all within the range of values considered to provide evidence of good model fit. Cutoff values close to 0.026 for RMSEA are also indicative of a meaningful model. The next step was to assess the statistical significance of each variable. Nine of the coefficients of the structural equations ranged from – 0.119 to 0.763. These results (see Table 3) denote accepting of the hypotheses with the significance of the coefficients at the 0.05 and 0.01 levels. Only one hypothesis, H1b ( $\beta = -0.119, t\text{-value} = -1.081, p > 0.1$ ) was not supported by the analysis.

Table 3. Maximum likelihood coefficients of the structural model

Path	Coefficients	Sign of Hypotheses	
		t values	Results
Information quality→ e-trust	0.256	2.843 **	(+) H1a supported
Learning capability → e-trust	-0.119	-1.081	(-) H1b not supported
System use→ e-trust	0.332	4.167 ***	(+) H1c supported
Intimacy→ e-trust	0.721	7.354 ***	(+) H2a supported
Empathy→ e-trust	0.635	8.780 ***	(+) H2b supported
Equity→ e-trust	0.484	9.509 ***	(+) H2c supported
E-trust→ world of mouse	0.270	5.658 ***	(+) H3 supported
E-trust→ behavioral e-loyalty	0.763	6.719 ***	(+) H4a supported
E-trust→ attitudinal e-loyalty	0.386	6.187 ***	(+) H4b supported
$\chi^2$ (chi-square)=	220.964		
df =	182		
$\chi^2 / df =$	1.214		
Goodness of fit index(GFI) =	0.941		
Adjusted GFE (AGFI) =	0.917		
Normed fix index (NFI)=	0.947		
Comparative fix index (CFI)=	0.96		
Root-mean square error approximation (RMSEA)	0.026		

\*\* : significant at  $p < 0.05$  (one tailed)

\*\*\* : significant at  $p < 0.01$  (one tailed)

#### 4. Discussion and managerial implications

This study has incorporated many determinants and outcomes of e-trust into one model. These determinants and outcomes have all been investigated in previous studies [Hwang & Kim 2007, Pennington et al. 2004]. However, they had not been tested simultaneously in any previous e-marketing or e-commerce investigations. Additionally, the design of this study, which broke down the antecedents of e-trust into technical and social bonds, is an approach that has not previously garnered much attention in the online auction literature. The results of this model should provide more in-depth information about how online auction companies can better foster e-trust. Also, this study has distinguished two types of e-loyalty that are influenced by e-trust in online auctions. The results suggest that the e-trust model is a good representative of the sample data, with the exception of the construct of learning capability. All of the other hypotheses were supported by the data.

##### 4.1. The antecedents of e-trust: technical bonds

Henczel [2004] proposed the idea that by incorporating user profiling, an online company is providing a higher quality of information to its customers. Furthermore, an online auction site offering helpful information applications, which place the interactions with the customer at the center of an effective information management system, provides a competitive advantage. In addition to the results of the present investigation, other research [Liu & Arnett 2000] has supported the relationship between information quality- that is the real time availability, correctness, and comprehensiveness of information- to online users and e-trust. Thus, information quality has an active influence on e-trust.

The empirical results did not support a causative relationship between learning capability and e-trust. As websites satisfy web user needs to become more interactive through providing user-friendly on-screen material, customers dramatically increase the volume of their usage. This reflects the many changes that result when users suddenly receive new capabilities and information. In the case where the information concerns unhappy online experiences, the more the interactivity rises. Since these users have also become proficient at interacting on the Internet, they will find it easy to employ e-mail, bulletin boards, Internet news groups, or chat groups to share their unhappy experiences. Moreover the delivery speed of negative information is faster than that of positive [Belson & Richtel 2004]. Therefore, customers intending to search for updated information relating to online auctions are more likely to encounter the negative information that has been promptly spread by those of high learning capabilities. It appears that managers of online auction sites don't have to be too concerned if their systems do not provide much in the way of interactive learning tools as this construct might hamper the development of e-trust. Furthermore, Technology Acceptance Model (TAM) could offer an accepted rationale for this finding [Gefen et al. 2003, Ratnasingam 2005]. TAM posits that e-commerce adoption is affected by prior use related beliefs. Due to the high usage rate of the respondents sampled, it maybe results that this group of users is highly comfortable with technology and highly sophisticated, so learning is less important for them.

A positive relationship between system use and e-trust was found. This finding is supported by the previous literature. Mcknight et al. [2002] proposed the notion of structural assurance, that means the web has protective legal of technological structural that assure that web business can be conducted. Structural assurance already supports the relationship between website quality and e-trust mechanism. When a customer purchases an item online, the company supplies the security for the transaction, including privacy of payment data, confidentiality of order information, and the evaluation of personal credit, among others. When transactions occur without compromising this information, the customer can trust that no fraudulent activity is likely to take place [Perry et al. 2002]. From a technology viewpoint, the web user should have some control, but not too much. Thus, managers who consider the various components of web-page design, such as hyperlinks, toolbars, or textual links are much more likely to make the process of interacting with auction sites easy for customers. This will help to build e-trust.

##### 4.2. The antecedents of e-trust: social bonds

Following the above-mentioned technical bond analysis, web companies concerned with their customers' purchase habits and preferences develop detailed databases which can track purchase activities, predict future actions, and help managers communicate and share information with customers through the Internet. This provider-customer interaction helps to foster an intimate relationship. As customers interact with such websites over time, this develops higher and higher levels of e-trust. This result is consistent with previous findings [Rackham et al. 1997, Zhang 2001].

One of the most crucial factors for online auctions is empathy. As stated above, this includes the willingness and ability to listen to users' expectations and complaints. When customers express their dissatisfaction, the marketing manager should immediately and amicably respond. A kind response will bring the customer back for repeat purchases [Phillips 2004]. The result significantly supports the empathy as antecedents of e-trust. As online auction site and the user reasonably develop ongoing interactions, which help to improve empathy, this will work to help establish e-trust. This should bring benefits to both parties.



Online auctions provide less accessible and less complete information than that of traditional auctions. This scarcity increases web users' worry. Thus, transparency and real time information, satisfaction, and security have an impact on e-trust [Anderson & Bezuidenhout 1996]. We also found that equity has an obvious influence on e-trust. In relationship marketing studies [Ganesan 1994], the notion of the fairness of the exchange has been used to understand cooperative behavior and long-term stability. Our finding suggests a website's manager should offer open, safe, and comprehensive auction information so that users can perceive the symmetrical transaction information between both parties. This is another variable that can lead to e-trust.

#### 4.3. The outcomes of e-trust: word-of-mouth and e-loyalty

Because of the inherent intangibility of online auctions, e-trust not only plays an important role in Internet communication, but also has a direct effect on word-of-mouth depending on how closely a user is related to the referent. The results of this study concur with previous results that highlight the point that longstanding and satisfied customers will recommend websites to other online users through newsgroups, e-mail, and other online interactive mechanisms [Kiecker & Cowles 2002]. Based on this finding, managers need to act on the importance of word-of-mouth in their e-marketing strategies. When an online auction exchange is perceived as positive and trustworthy by the user, such a positive exchange atmosphere may enhance web users' positive attitude toward the website. Word-of-mouth exchanges increase as result, and the company stands to reap the benefits of such information sharing.

Research has shown that users' e-trust affects behavioral e-loyalty responses [Singh & Sirdeshmukh 2000]. Our findings extend this concept further by showing that e-trust-based online consumption is linked to satisfaction and a range of post-purchase behaviors, including recommendations and repeat purchase intentions. The results of this study support the impact of e-trust on behavioral and attitudinal e-loyalty. The vital implication here is that managers should realize that because e-trust influences e-loyalty, they should seek to maximize e-trust. Otherwise web users may take their business elsewhere. And they may well influence others to do so as well.

In sum, although word-of-mouth communication helps to attract new users, e-loyalty increases the economic attractiveness of existing users. Retaining existing customers has been interpreted as one of important strategies by many proponents [Smith 2001]. Both attraction and retention are critical because long-term strategic success cannot be achieved by focusing exclusively on the attraction of new web users to the detriment of retention existing web users.

### 5. Limitations and suggestions for future research

The research presented here provides an investigation into e-trust in online auctions. Findings afford an extended perspective on electronic marketing and electronic commerce theory. The findings of this study reveal that the antecedents and outcomes of e-trust can be combined into one model. However, as with other research, some limitations are present.

First, the major limitation of this study is the lack of a widely applicable sample, given that the sample was obtained from two online auction sites and from snowball and judgment sampling methods. But, the condition of snowball is present in all studies that rely on voluntary reporting (i.e. surveys). To minimize this disadvantage, this study used a relatively large cross-section of web users as its sample because it is better to have more sample data than less. Although the researchers were not allowed to hyperlink the questionnaire to the eBay or Yahoo! websites, the questionnaires were distributed through newsgroups, e-mail, chat rooms, and BBS. The purpose behind such a distribution method was to enhance the general reliability of the findings.

Second, another limitation was the composition of the sample population of web users. The sample consisted that some 62 % had participated in more than 10 auctions, but only 7 % had had only one auction experience. Thus, the findings of this study cannot generalize to one with whom the web users had no prior experience. Those unfamiliar web users are those who trust in an unfamiliar website; namely, initial trust [Wakefield et al. 2004, Hampton-Sosa & Koufaris 2005]. Future research in the area should include unfamiliar web users to reflect the broader population.

Third, in the primacy qualitative analysis phase, the researchers consulted two managers from eBay and Yahoo!, respectively, and also discussed the questions with a professor of marketing. Some of the questions received slightly different interpretations from the managers and specialist. Future research is encouraged to extend this work to a wider consultancy.

Fourth, a shift in focus in identifying the antecedents and outcomes of e-trust would be fruitful. A vast number of relationships identified in marketing literature concerning the antecedents of trust, such as transaction specific investments [Ganesan 1994], shared values [Morgan & Hunt 1994], reputation [Doney & Canon 1997], and concerning the consequences of trust, like commitment [Nielson 1998] and reduction of transaction costs [Cummings & Bromley 1996] were not considered in this study. While extended research needs to be conducted on

identifying the determinants of and outcomes of e-trust, it would be appropriate to explore more comprehensively the e-trust model.

Finally, nonetheless, the real causes and effects of e-trust are essentially ambiguous, mainly because of the difficulty of objectively classifying them. These ambiguities come from the inherent nature of circular causal links. The problems of identifying the determinants of e-trust may be connected to the effects that it produces, in a retroactive way, on the determinants themselves. However, this study referred to the literature and subjectively categorized some variables as antecedents or consequences; it results one controversial issue (i.e., learning capability → e-trust). Further clarification of the constructs and their causal is contingent on future research.

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