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Abstract

In commercial transactions, trust in sellers (TIS) is the degree of trust that buyers bestow upon sellers. The existence and level of TIS is obviously a factor determining whether buyers will buy. TIS is particularly important in consumer-to-consumer e-commerce transactions, such as online auctions, which are characterized by anonymity and asymmetric product quality information. Given the importance of TIS, the dimensionality of the construct was investigated using confirmatory factor analysis, employing buyer experience as a mediator. The expectation was that experienced subjects (subjects who have made a bid) would have a more detailed, differentiated conceptualization of TIS than inexperienced subjects (subjects who have never bid before), but the opposite was found. This is tentatively ascribed to the halo/horns effect, well-known from the performance appraisal literature. The managerial implications of this result, its possible effects on buyers' purchase intentions, and directions for future research are discussed.

Keywords: Trust, online auctions, e-commerce, halo effect

Introduction

Online auctions trade billions of dollars' worth of goods. A study by Forrester Research (Johnson 2002) predicted that online auctions would grow from $13 billion in 2002 to $54.3 billion by 2007, a 33 percent annual growth rate representing 25 percent of U.S. online retail sales. In 2002, a total of 21 percent of online North American households made an auction purchase. For example, eBay, the prototype of online auction sites, has experienced outstanding growth on all fronts since its start-up in 1995. In the first quarter of 2003, eBay accounted for $3.7 billion in sales, or 15.4 percent of all American e-commerce. By way of comparison, Amazon, another well-known e-commerce brand, recorded only $640 million in sales, one-fifth of eBay's sales during the same period (Johnson 2003a, 2003b). Online auction sales keep growing strongly, and consumer-to-consumer auctions are projected to grow from $3 billion in 1999 to $15.1 billion in 2004 (Trager 2000). However, complaints about online auction transactions have also skyrocketed. In 2001, the average loss in online auction fraud was $326 (Grant 2001). In 2003, it became the first-ranked complaint in e-commerce, accounting for 89 percent of the Internet fraud reports made to the Internet Fraud Watch.[1] Even though many online buyers do have good experiences, the increase of complaints concerning online auction fraud will affect the perception of current and potential users, and hinder the growth of online auctions in the future.

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[1]"2003 Internet Fraud Statistics," *Internet Fraud Watch*, 2003 (available online at **http://www.fraud.org/internet/intstat.htm**; accessed February 20, 2004).

Mechanism of Online Auctions

The English auction, in which the highest bid wins, is the most commonly used method for commodity auctions. A typical auction starts with a seller posting the item for sale, be it a product or a service, on the auction site, along with descriptive information and photographs. Buyers then register their bids on the item. Buyers e-mail sellers if they have any questions concerning the auction item. Auction sites automatically send e-mail confirming bids, and also notifying bidders who are outbid. After the bid is closed, the auction site will notify the highest bidder (winner) and the seller. The winner and seller then arrange for payment and delivery, using mutually agreeable terms and methods. After the transaction is completed, the buyer and seller evaluate each other by leaving comments and a rating on the feedback forum. The rating index, published by the auction site, is treated as an indicator of the sellers' and buyers' reputations.

The Role of Buyers' Trust in Sellers

Previous research on business-to-consumer e-commerce (Cheung and Lee 2000; Jarvenpaa et al. 2000; Lee and Turban 2001) highlighted the importance of the trust that consumers have in e-businesses. Although an auction buyer is a consumer, and an auction seller plays the role of a business, the role of trust in online auctions has not been investigated. An e-business auction site, such as eBay and Yahoo! Auctions, is an unaligned third party; that is, buyers do not buy directly from the e-business entity, but from the sellers. Nevertheless, the auction site provides critical services, such as providing accurate information about sellers' and buyers' reputations, and it seems obvious that both buyers and sellers need to have trust in the site. The role of trust in auction sites, like trust between auction sellers and buyers, has likewise not been investigated. Lack of trust is widely recognized as one of the key factors that discourage people from participating in e-commerce (Lee and Turban 2001). Trust is a critical factor in stimulating purchases over the Internet. The factor of trust is more critical in the context of online auctions because the verifiability of product information and the institutional protection afforded by the auction site (notably the reporting of vendors' reputations) are even weaker than they are in conventional non-auction Internet shopping (Chong et al. 2003).

McKnight and Chervany (2001-2002) noted that a user with no experience trading at the site can rely on the experience of others, as reflected in vendors' reputations. In general, a vendor with a good reputation tends to inspire buyer trust, but reputation is problematical in online auctions. First, long-term buyer and seller relationships are less likely to be found, as most of the transactions are one-off (Ba 2001). Resnick and Zeckhauser (2002) reported that during a five month period (February to June 1999), 89 percent of all eBay seller–buyer pairs conducted only one transaction and 98.9 percent conducted no more than four. In addition, the identities of sellers are pseudonymous and can be changed from time to time. The nature of the on-line auction as a non-repeating game creates a "fraud-friendly" environment, and gives sellers room to act opportunistically. Lacking a personal connection or prior trading experience with vendor, buyers rely on the feedback system to judge their trustworthiness and performance. But the feedback system has numerous drawbacks, including the fact that ratings and comments are subjective and situational. Furthermore, the problem of asymmetrical information (that is, known to only one party) concerning the quality of products is severe, because many items sold at auction are non-standard, such as second-hand, collectibles, and discontinued items. Their quality and condition are hard to assess before the buyers actually acquire them. Thus, buyers have to trust the information provided by the sellers. However, distortions of the truth, either intentional or unintentional, are not unusual. Discrepancies between what buyers received and what they expected are common. In addition, the chances for opportunism are increased by the fact that the transactions are non-simultaneous: buyers are required to pay before sellers ship items. This time asymmetry produces risk for buyers (Salam et al. 1998). In addition, the transaction is cross-border—that is, the exchange is not face-to-face, and both parties must rely upon intermediaries. If buyers do not receive items, there is no way to be sure whether it is due to delivery (e.g., mail) problems, or to sellers not releasing items after the purchase price has been paid. In addition, general-market auction sites have little ability to ensure product genuineness or quality, or to ensure due diligence and honesty on the part of buyers and sellers.

> eBay clearly declares that it has no control over the quality, safety or legality of the items advertised, the truth or accuracy of the listings. The company excuses itself from the responsibility in its User Agreement: Because user authentication on the Internet is difficult, eBay cannot and does not confirm each user's purported identity and thereby recognizes the difficulty of verifying user identity and guaranteeing product quality. (Ba et al. 2000, p. 33)

Since auction sellers are known by pseudonyms that can be changed without fee, the consequences of poor reputation can be easily overcome. Even if a seller has acquired a good reputation, there is a temptation to abandon it and engage in opportunistic dealings, knowing that he or she can always lose a bad reputation by starting over again with a new pseudonym. Institutional

protection, such as the enforcement of the trading norms and regulations laid by the auction sites, is not strong. Worse still, the trading parties may be in separate legal jurisdictions far way from each other. This increases the difficulty of prosecuting fraudulent sellers. Legal prosecution is seldom an economically viable option in any event, since many transactions are worth only a few dollars or tens of dollars.

To summarize: In the fluid, uncertain, anonymous environment of Internet auctions, the trust that buyers feel in sellers (trust in sellers, or TIS) is critically important. It is, therefore, important to understand the nomological location, meaning, and consequences of TIS in the e-auction context.

The Definition of TIS

Trust is an important force in most buyer-seller transactions. It serves as a form of implicit contracting, acting as a guarantee that expectations will be met (Arrow 1974). From a social psychological perspective, trust is operationalized in terms of the "Willingness of the trusting party to engage in a transaction, the perceived risks associated with the transaction, and the contextual factors that either enhance or inhibit its development" (Lee and Turban 2001, p. 77). Gambetta (1988) characterized trust as a subjective probability that one party will perform an anticipated action, as estimated by another (trusting) party. Trust, however, is more than purely subjective. Trust also depends upon specific qualitative evaluations, estimates of probable success, evaluations of the competence and motivation of the trusted party, possible extraneous factors bearing upon the action, and other risks (Castelfranchi and Falcone 2000). There are different interpretations of the notion of trust in a seller. As applied to C2C online auctions, the definition by Geyskens et al. (1996) is used to define TIS: "A belief or expectation that a seller's promise can be relied upon, and that the seller will not take advantage of the buyer's vulnerability." A review of relevant literature (Bhattacherjee 2002; Cheung and Lee 2000; Jarvenpaa and Tractinsky 1999; Lee and Turban 2001; Mayer et al. 1995; McKnight and Chervany 2001, 2001-2002) reveals that buyer's TIS is a multifaceted construct, and that its dimensions are *integrity, benevolence* and *competence*. Each of these dimensions will be discussed in turn.

The Dimensionality of TIS

A buyer ascribes *integrity* to a seller if the buyer is confident in the seller's honesty, believes that the seller will comply with his or her promises, and will adhere to agreed-upon rules (Cheung and Lee 2000). Obviously, belief in a seller's integrity will increase the buyer's subjective probability that the seller can be trusted (i.e., will increase buyer TIS).

A buyer ascribes *benevolence* to a seller if the buyer believes that the seller is motivated by goals other than short-term profit. Benevolence goes beyond the level of one, explicit contract. It is about the total exchange relationship, and belief that the seller will voluntarily take initiatives favoring the buyer, while going the extra mile to avoid taking unfair advantage (Sako 1992). If the buyer ascribes a high degree of benevolence to the seller, it will increase the buyer's subjective probability that the seller can be trusted, and will increase TIS.

A buyer ascribes *competence* to a seller if the buyer believes that the seller has the skills, abilities, and expertise to deliver the agreed-upon goods or services. It is also based upon the belief that the seller will perform consistently over time (Barber 1983; McKnight and Chervany [2001] identified this as a separate dimension of TIS, namely *predictability*). If the buyer believes that a seller has all the resources necessary to deliver the agreed-upon good or service, it will increase the buyer's subjective probability that the seller can be trusted, and will increase TIS.

The Role of Buyer Experience

It is an axiom that past behavior is the best predictor of future behavior. According to Ajzen's (1991) theory of planned behavior, manifest behavior is based upon attitudes and beliefs. It follows that past behavior must have some effect upon the attitudes and beliefs that produce future behavior, a proposition that most people would recognize as being self-evident. More explicitly, the hypothesis here is that TIS (an attitudinal construct) affects overall trust in auctions (a second-order construct), which in turn affects future decisions about whether to participate in auctions (a behavior). If past behavior affects future behavior, then past participation in auctions should affect future participation in auctions; but it can only do so through the mechanisms of the attitudinal antecedents of behavior, which in this case include TIS. Therefore, the decision was made to include buyers' *previous experience with Internet auctions* as a possible moderator, and to examine its effects upon the factor structure of TIS.
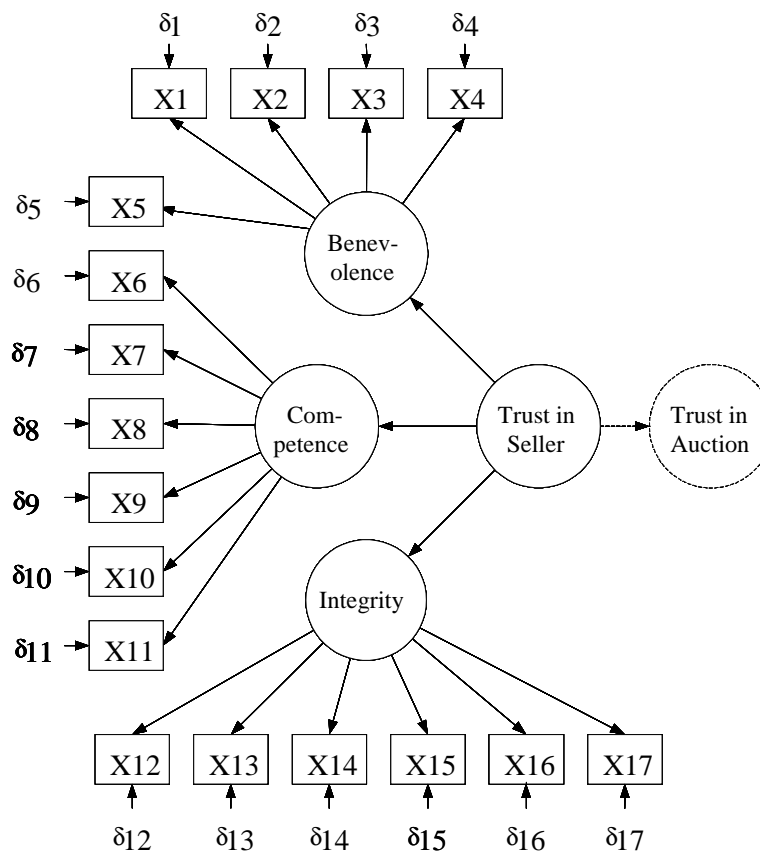
Figure 1. Buyer's Trust in Seller (Three-Factor Model)

The Research Model

The research model, a measurement model for TIS, is shown in Figure 1. The buyer's TIS is manifested via the three distinct components discussed above: perceived benevolence, competence, and integrity. TIS, in turn, is positively related to the buyer's overall trust in the auction process. The path from TIS to trust-in-auction is shown as a dotted line, and has not yet been tested. Trust-in-auction is one of several determinants of the decision to participate in future auctions, but this part of the model (the Y side) is not shown.

It should be noted that this model is part of a larger model that includes not only trust-in-seller, but also trust-in-intermediary (TII); that is, the buyer's trust in the auction site itself. In the full model, both TIS and TII are antecedents of trust-in-auction. Research aimed at validating the full model is in progress.

Testing the Model

A survey was conducted using undergraduate and graduate business students at a large Asian university. The subjects included both students who have and do not have experience with online bidding. A total of 361 questionnaires were returned and all of them were useable. Multiple-item Likert scales were used to measure the three hypothesized dimensions of benevolence, competence, and integrity (Table 1). Most of items were adapted from prior studies; however, no single measurement scale established from past literature can be fully adopted because measurement items used in previous studies are mainly for e-retailers in an online shopping context, not for direct seller. In this study, the roles of intermediary and seller are separated. In addition to the uniqueness of the online auction mechanism, minor wording changes were made to tailor the measurement items to the online auction context and some new items were especially designed for this study. A content analysis and a focus group discussion with university students were adopted for developing and validating the new measurement items. A content analysis on users' reviews of their online auction experiences was done to comprehend the actual users' experiences dealing with auction

Table 1. Survey Items (From Exploratory Factor Analysis)

Factor	Question No.	Measurement Items	Experienced Group Factor			Inexperienced Group Factor			Sources
			1	2	3	1	2	3	
Perceived Integrity	1	The sellers are honest with bidders.	.26	.34	*.63*	*.83*		.17	Lee and Turban 2001
	4	The sellers provide reliable information.		.37	*.76*	*.75*		.30	Doney and Cannon 1997
	5	The sellers do not set the reserve price or start-bid price higher for online auction than they would in other markets.*	.26		*.52*	*.43*	.13	.15	New Item
	9	The sellers are unlikely to make false claims.			*.72*	*.54*	.22		Doney and Cannon 1997
	12	The sellers want to be known for keeping promises and commitments.	.71		*.44*	*.54*	.46	-.16	Jarvenpaa and Tractinsky 1999
	14	The sellers act sincerely in dealing with bidders.	.50	.28	*.37*	*.53*	.31		Lee and Turban 2001
Perceived Competence	2	The sellers have the ability to handle transactions in the expected manner.	.50	*.56*		.33	.22	*.71*	Lee and Turban 2001
	6	The sellers have adequate knowledge to handle inquiries and manage transactions.	.43	*.65*	.13	.15	.10	*.80*	Lee and Turban 2001
	8	The sellers have sufficient expertise and resources to do the transactions.	.34	*.69*	.15	.20	.67	*.37*	Lee and Turban 2001
	13	The sellers respond quickly.	.29	*.55*	.18	-.17	.30	*.44*	Sirdeshmukh et al. 2002
	15	Most sellers have a high successful transaction completion rate (TCR).*		*.77*	.23	.12		*.75*	New Item
	16	The sellers have ability to perform consistently over time.*	.43	*.56*	.20	.12	.12	*.60*	New Item
Perceived Benevolence	3	The sellers want to have good feedback ratings.*	*.73*	.21	.26	.19	*.62*		New Item
	7	The sellers give honest advice and information to people with questions, even though they may not place a bid.	*.37*	.42	.31	.17	*.42*	.67	Sirdeshmukh et al. 2002
	10	The sellers treat bidders with respect.	*.70*	.41		.23	*.63*	.32	Sirdeshmukh et al. 2002
	11	The sellers intend to build a good relationship with every bidder.*	*.80*	.23			*.75*	.14	New Item
	17	The sellers act as if they value bidders as customers.	*.65*	.41	.23		*.80*	.19	Sirdeshmukh et al. 2002

*New items based on focus group work and content analysis.

sellers (Chong et al. 2003). Two U.S.-based sites, epinion.com and gomez.com, were chosen for studying the feedback of the users of U.S.-based auction sites (Amazon Auctions, AuctionWatch, eBay, ubid and Yahoo! Auctions). cmasia.com was chosen for studying the feedback of the users of Chinese-based auction sites (EachNet, eBay Taiwan, Yahoo HK, Go2HK and Red-dots). In addition, the feedback left in the forum of those respective auction sites was also studied. Finally, 517 effective messages made on U.S. auction sites and 493 effective messages made on Chinese online sites in the period of July 1999 to August 2002 were reviewed. Content analysis found that the major concerns/complaints of buyers on sellers related to the three trust attributes,

integrity, competence, and benevolence. It shows that seller misbehaviors are all about shilling, lying about the product quality, playing "cheat and leave," delaying the delivery, not shipping the products, and not contacting the buyers after the bid ended. Those dissatisfactory experiences affect their recommendations and evaluations on the auction sites, and the final decision of quitting or retaining.

A focus group discussion session was carried out with the undergraduate students to understand how they feel about online auctions. A total of 13 students were recruited, including 4 auction users and 9 non-users. They were interviewed and their opinions about online auctions were collected. The questions for the interview focused on factors that influence their decision to participate or not participate in bidding, critical factors that influence their decision to trust or not to trust, experiences in online auctions, perceptions of online auctions, perceived costs and benefits associated with using online auctions for purchasing, and intention to use it. Also, students were asked to rank the proposed measurement items in terms of the importance and effectiveness of using these items for measuring the respective constructs. They were asked to rate which statements can best describe their feeling, perception, or opinion. The group discussion elicited information about their perception of trustworthiness, their experiences in online auctions, and the factors affecting their decision to participate in online auctions. Subsequent analysis was undertaken by calculating the measurement rating and transcribing, summarizing, and tabulating their comments in accordance with the related issues identified from the literature. This effort has been useful for conceptualizing the constructs and designing the questionnaire. Finally, the questionnaire was reviewed by frequent users of the online auction and researchers to ensure content validity.

A seven-point response set was used, with possible answers ranging from 1, strongly disagree, to 7, strongly agree. Since the objective was to investigate differences in the ways that inexperienced and experienced subjects conceptualize TIS, the subjects were divided into two groups: those who were familiar with online auctions but who had not taken part (the inexperienced group), and those who, in addition to being familiar, had actually taken part in at least one auction (the experienced group). There are 245 respondents in the inexperienced group and 116 in the experienced group. The descriptive statistics of the respondents were further analyzed to check the profile of respondents. The characteristics include gender, age, education, income, occupation, years of experience in using computers, frequency of using the internet, time spent on browsing web sites, and experience in online bidding. Most of the respondents reported that they are full-time students (92.5 percent), aged between 18 and 24 (94.0 percent) with income less than HK$10,000 (94.8 percent). Of the total, 62 percent are female. Almost all of them (98.3 percent) use the Internet at least once a day. A total of 66.2 percent are sophisticated users who have at least six years experience using computer and 70.6 percent of them spend more than six hours per week on browsing Web-sites. But still, only roughly one-third of them (32.1 percent) have prior experience bidding online. Next, scale reliabilities for the three constructs were assessed using reliability analysis. The results are shown in Table 2. The three scales exceeded Nunnally's (1978) criterion of 0.70 for inexperienced, experienced, and all users.

The measurement model was tested using structural equation modeling (SEM). Certain procedures were adopted for confirming certain assumptions about the data, especially about the distributional characteristics, required for SEM to be met. The assumptions include normality, linearity, no extreme multicollinearity, and no outliers. To detect the existence of outliers, standard deviation of the items were checked. Table 3 shows that all standard deviations are under 2, therefore, outliers are not found. In addition, as skew and kurtosis values are within +/-3, it can be concluded that the data is normally distributed.

Table 2. Cronbach's Coefficient Alpha of Three Trust Attributes

	No. of Items	Cronbach's Alpha		
		All Subjects	Experienced Group	Inexperienced Group
Perceived Integrity	6	.777	.779	.763
Perceived Competence	6	.800	.840	.760
Perceived Benevolence	5	.772	.805	.741

Table 3. Descriptive Analysis Results for Individual Measurement Items

Variable/Items	Mean	STD	Skew	Kurtosis
Perceived Integrity	4.23	.042	-.33	-.41
The sellers are honest with bidders.	4.02	1.19	-.02	-2.69
The sellers provide reliable information.	4.06	1.22	.97	-2.65
The sellers do not set the reserve price or start-bid price higher for online auction than they would in other markets.	4.21	1.09	-.34	-.26
The sellers are unlikely to make false claims.	3.98	1.16	.57	-1.64
The sellers want to be known for keeping promises and commitments.	4.66	1.26	-2.50	-.53
The sellers act sincerely in dealing with bidders.	4.44	1.12	-1.14	-1.09
Perceived Competence	4.52	.04	.35	2.36
The sellers have the ability to handle transactions in the expected manner.	4.65	1.04	-2.12	-1.18
The sellers have adequate knowledge to handle inquiries and manage transactions.	4.42	1.13	-2.61	-1.85
The sellers have sufficient expertise and resources to do the transactions.	4.36	1.12	-2.20	1.02
The sellers respond quickly.	4.48	1.21	-2.26	-.64
Most sellers have a high successful transaction completion rate (TCR).	4.20	1.02	1.23	.39
The sellers have ability to perform consistently over time.	4.36	1.00	-2.84	-.50
Perceived Benevolence	4.49	.046	-.66	2.20
The sellers want to have good feedback ratings.	5.14	1.22	-2.27	.17
The sellers give honest advice and information to people with questions, even though they may not place a bid.	4.08	1.20	1.86	.87
The sellers treat bidders with respect.	4.46	1.04	-1.38	-.08
The sellers intend to build a good relationship with every bidder.	4.65	1.24	-2.40	.04
The sellers act as if they value bidders as customers.	4.79	1.09	-2.62	.39

SEM assumes linear relationships between indicator and latent variables, and between latent variables. To check the linearity, the correlations between variables were checked and found to be significant at the level of $p < .01$ (R = .56–.67); therefore, it can be concluded that there are linear relationships between variables. Also, a standardized scatterplot of the standardized predicted dependent variable by the standardized residuals was run and it shows a random pattern, confirming that the assumptions of linearity and homoscedasticity hold. Multicollinearity occurs when intercorrelations among some variables are so high that certain mathematical operations are either impossible or the results are unstable because some denominators are very close to zero (Kline 1998). To detect multicollinearity on the multivariate level, squared multiple correlations (R^2) between each individual variable and all others was calculated. As no R^2 is greater than .90 (R^2=.31-.45), multicollinearity is not found.

From the above testing results, we can conclude that the overall data meet the assumptions of the data required for SEM and further statistical analysis can proceed. SEM assesses the validity of a model by comparing the covariance matrix of a sample with the covariance matrix implied by the hypothesized model (Jörekog and Sörbom 1996). The correspondence between the data and the model is known as fit; a low degree of fit disconfirms the model, while a high degree of fit fails to disconfirm it. (One cannot say that a high degree of fit necessarily confirms a model; there are, in principle, many models having the same degree of fit.) The traditional fit measure is the minimum of the empirical fit function F_{min}, weighted by the sample size. The statistic is distributed as χ^2, and is usually designated as such—i.e., $\chi^2 = F_{min}(N-1)$. For large sample sizes, this statistic is sensitive to sample size, leading to rejection of models that are only slightly "wrong" (e.g., Tanaka 1993) and resulting in the development of a large number of alternative indices such as the root mean square error of the estimate (RMSEA; Steiger 1989). The controversy over the proper definition of "fit" began in the early days of SEM and continues to this day. A use of SEM that is less controversial than the evaluation of absolute fit is the evaluation of *relative* fit; that is, the relative value of competing models. (For one application, see Vandenberg and Lance 2000). SEM was used here to compare the dimensionality of SEM for inexperienced and experienced users.
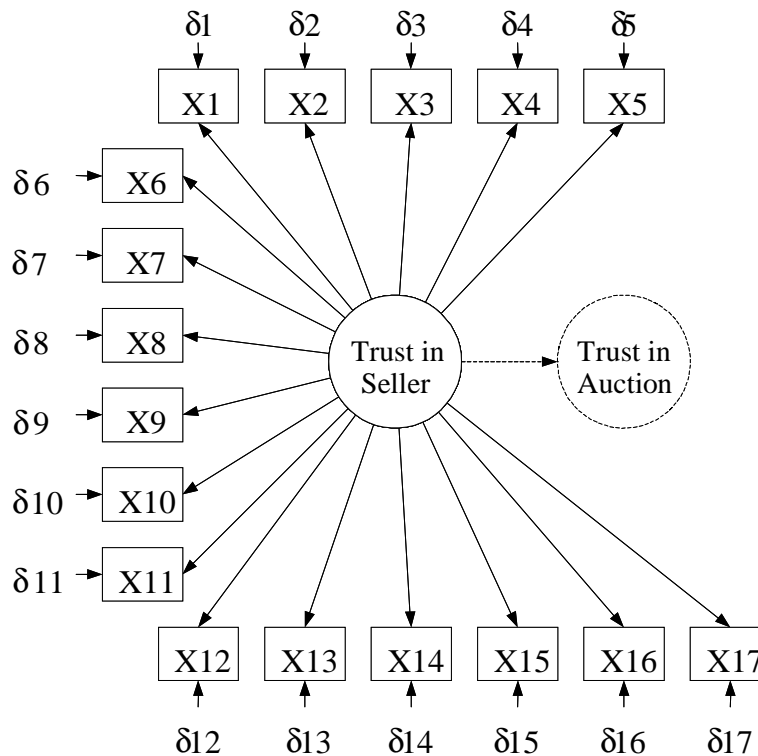
Figure 2. Buyer's Trust in Seller (One-Factor Model)

The baseline model (Figure 1) is composed of three factors, as discussed earlier. The alternative model (Figure 2) has only one factor, which is TIS itself. The alternative model was suggested by the research by McKnight et al. (2002b) and Bhattacherjee (2002) into on-line shopping, which identified trust as a unidimensional construct. Two-construct measurement models were not examined as there was no theoretical justification for combining any two of the three baseline constructs while not including the third. Further, it seemed plausible that trust could be experienced as a unitary, undifferentiated concept in the minds of the subjects.

The results are summarized in Table 4. The fit indices (other than χ^2, which was not significant) indicated satisfactory fit for both the one-factor and three-factor models, for both the inexperienced and experienced users. The difference in fit between the one-factor and three-factor models, in terms of $\Delta\chi^2$, was not significant for the inexperienced subjects. It was, however, significant for the experienced subjects. Subjects who had actually made an online auction bid perceived TIS as being more unitary, while those who had not made a bid perceived it as being composed of three components, as hypothesized.

Table 4. Goodness-Fit Indices

	Experienced Group (N=116)	**Inexperienced Group (N=245)**
1 - Factor Model	$\chi^2 = 237.7$, df= 119 RMSEA = .093, CFI = .980, TLI = .975, NFI = .962, RFI = .951, IFI = .981	$\chi^2 = 518.8$, df= 119 RMSEA = .117, CFI = .969, TLI =.961 NFI = .961, RFI = .950, IFI = .970
3 - Factor Model	$\chi^2 = 366.2$, df= 116 RMSEA = .134, CFI = .959, TLI =.948 NFI = .944, RFI = .924, IFI = .960	$\chi^2 = 516.0$, df= 116 RMSEA =.117, CFI =.970, TLI =.961 NFI = .961, RFI = .950, IFI = .970
	Δ of χ^2 = -129.06***	Δ of χ^2 =2.84

***P $\leq$ .001

Discussion

The results reveal that there may be differences on how trust is conceptualized between experienced and inexperienced subjects. The findings in this study contradict previous studies (McKnight and Chervany 2001-2002; McKnight et al. 2002a) showing or arguing that experienced subjects should have a better ability to identify the underlying components of their beliefs. Prior research argues that people who have experience and knowledge should develop more fine-grained evaluative paradigms (Murphy et al. 1993). However, the results in the present study indicate that although the trust attributes of benevolence, competence, and integrity should be conceptually different, in reality, subjects who have taken part in online auctions cannot differentiate them. Using three-factor analysis does not generate a significant improvement on model fit. It means that experienced subjects tend to correlate the three factors—perceived integrity, perceived competence, and perceived benevolence, which are supposed to be conceptually independent—and factor them together as one single factor. That implies experienced subjects tend to believe that sellers with integrity are also competent and benevolent, or vice versa. This may be because the mindset of experienced subjects has been emotionally influenced by their past experiences, thus they have difficulty identifying the differences of the dimensions.

These finding are tentatively explained in terms of the halo effect. Halo is present whenever principal component analysis (PCA) results in a common general factor showing high loadings on nearly all attributes, which accounts for appreciable variance (Dillon et al. 1984). From the exploratory factor analysis, the three-component solution was found to account for 57.4 percent and 50.3 percent of the total variance of the construct of the TIS for the experienced group and the inexperience group respectively, while the first factor accounts for 43.0 percent and 32.7 percent of the total variance for the experienced group and the inexperience group respectively. Apparently, the results of PCA show that 1-factor seems to explain most of variation. "The emergence of a large first factor may be evidence of a strong halo effect" (Leuthesser et al. 1995, p. 60).

The Halo Effect

Thorndike (1920, p. 25) defined halo as a "marked tendency to think of the person in general as rather good or rather inferior, and to color the judgments of the specific performance dimensions by this general feeling." Halo effect, in general, assimilates the evaluations of different attributes, flattens the overall profile of evaluations, and compresses the differences between evaluations of different attribute performance (Murphy et al. 1993). It would be regarded as, "A rater's failure to discriminate among conceptually distinct and potentially independent attributes, with the result that individual attribute ratings co-vary more than they otherwise would" (Leuthesser et al. 1995, p. 58). Thus, buyers may have difficulty in assessing the individuality of each attribute of brand, product, service, or performance. Although brand characteristics, like reputation, seem to be comprised of several fundamental and independent dimensions, the halo effect masks this multidimensionality (Brown and Perry 1994; Fombrun and Shanley 1990).

There are many theories explaining the formation of halo. Cognitive consistency theories state that people strive to maintain a consistent set of beliefs and attitudes (Leuthesser et al. 1995). However, some people may be more prone to halo than others. Leuthesser et al. (1995, p. 60) found that raters who are "unfamiliar with the product or lack product knowledge may revert to simpler, holistic impressions to guide their ratings of individual attributes." Halo effects have been shown to be smaller when respondents are familiar, rather than unfamiliar, with what is being evaluated. In the area of performance appraisal, this means the raters who are more familiar with ratees produce ratings that are both lower in terms of halo and higher in terms of accuracy (Kozlowski and Kirsch 1987). This contradicts the findings of the current study with respect to TIS, in which halo seems to be formed among experienced subjects.

TIS may be based on a single characteristic from past experiences. Therefore, poor seller performance in one area may color buyer perceptions, predisposing buyers to negatively evaluate and complain about other seller attributes (Halstead et al. 1996). So if one attribute of a seller is rated poorly, the buyer would tend to regard the other attributes as poor, and ultimately the seller as not trustworthy. The bad (or good) experience in the past leads to the error of a one-attribute rating, which creates halo. It makes the experienced subjects incapable of distinguishing the differences among integrity, competence, and benevolence. The experiences may have to do with either the unexpectedly good or bad behaviors of sellers, which conferred either losses or unanticipated gains upon the buyers. The findings of McKnight and Chervany (2001-2002) support the argument that there is a tendency for trust-related beliefs to factor together.

> Some of the model constructs are delineated so finely that they may not be discriminant in empirical studies. The best example of this is the four trusting beliefs (integrity, competence, benevolence and predictability). Although these beliefs are often discriminant when the trustor knows the trustee well, they tend to factor

together when the trustor and trustee are not well known—especially trusting belief—benevolence and trusting belief—integrity. (McKnight and Chervany 2001-2002, p. 53)

In subsequent work, McKnight et al. (2002b) used a model with one factor, called trusting beliefs, which incorporates non-differentiated notions about benevolence, integrity, competence and predictability, rather than a four-factor model. But their argument is different from the one presented here, which is that experienced subjects cannot distinguish the conceptual differences among the various attributes of trustworthiness due to the halo effect generated by past experiences. According to McKnight et al., the opposite should occur. Naïve subjects should be more likely to make a unidimensional assessment of trust, while experienced subjects make multidimensional assessments.

Bhattacherjee (2002) also had similar uni-dimensional findings when studying trust in Amazon.com, a major Internet retailer. He surveyed subjects who had purchased at Amazon, and also found that the three trust dimensions (ability, competence and benevolence) were empirically inseparable even though they may be conceptually distinct. He also discovered that a user who rates an online firm highly on *overall ability* was also likely to perceive that firm as being high in integrity, benevolence, and overall trust. Thus, he modeled trust as a first-order construct, similar to the model shown in Figure 2. He further argued that subjects' overwhelming familiarity with Amazon may have led them to believe that the firm is excellent in all three dimensions of trust, and that an evaluation of a less familiar firm may have produced three distinct dimensions. This finding implies a halo effect for store brand. However, in the present study, familiarity and store brand cannot be used to explain the results, because the subjects were asked to evaluate their perceptions of online auction sellers in general, rather than a particular Internet store. It is the auction experience, rather than a seller brand, which causes the observed unidimensionality.

According to Thorndike, halo error causes correlations among rating dimensions to be higher than they should be, thereby making otherwise conceptually distinguishable dimensions of behavior appear to be more highly related than they actually are. "A rough rule of thumb is that average inter-correlations of around 0.6-0.7 or greater are suggestive of a halo effect" (Leuthesser et al. 1995, p. 60). Table 5 shows that strong correlations support the existence of halo effect across the three dimensions of trust, with correlations being stronger in the experienced group (.6 to .8) than in the inexperienced group (.5 to .6).

These results further contradict previous research (Wirtz 2003, p. 101), which showed that ,"The ratings given by respondents with high product involvement showed less halo than those of respondents with low involvement." This implies that halo errors should be low when respondents are experienced with the products they are evaluating. The opposite effect was found in this study. As explained above, experienced subjects made inferences about an attribute (TIS) based on their overall past experiences with sellers, so affective overtones associated with the overall experiences affected the perception of individual dimensions. Here, an overall experience rather than a particular transaction with an individual seller is measured because, in many cases, the buyer will not confront with the same seller again. The buyer usually does not know the real identity of transacting partners. Thus, the overall perception of sellers based on past experiences, rather than perception on a particular seller, will affect a buyer's decision on evaluating the risk of transaction. A single bad experience will far outweigh several good experiences. Experienced buyers will justify their choice of sellers by assessing the trustworthiness of online auction sellers in general based on their past experiences, particularly when the buyers cannot assure the trustworthiness of that seller. In addition, it is impossible to ask inexperienced subjects to image the trustworthiness of a particular seller, but an overall perception on sellers. Thus, collective entities are used as the unit of evaluation.

Table 5. Intercorrelations of Trust Attributes of Experienced Group and Inexperienced Group

	Experienced Group			Inexperienced Group		
	1	2	3	1	2	3
1. Perceived Integrity	1.000	.645**	.591**	1.000	.533**	.507**
2. Perceived Competence	-	1.000	.768**	-	1.000	.568**
3. Perceived Benevolence	-	-	1.000	-	-	1.000

** Correlation is significant at the .01 level (2-tailed)

Implications for Practice

Studies on the conceptualization of online trust and how it is developed over the increase in user experience are limited. This study makes a contribution to our understanding of consumer trust in the seller. Differences between experienced and inexperienced subjects in how they conceptualize trust attributes have been identified. This study is the first attempt to link the conceptualization of trust with customer experience. This study helps to resolve two important issues with respect to trust in online auctions. First, trust is theoretically multidimensional but the empirical findings show that the trust attributes seem to be conflated. Thus, a poor or good rating on one attribute of trust may color the buyer's perceptions, predisposing the buyer to negatively or positively evaluate other trust attributes. It is like a domino effect, in which failure or success of one trust attribute may engender failures or successes in other attributes. Second, there is a difference in the ways that auction users and non-users conceptualize TIS. Halo effect is suggested to explain this effect. Halo effect on the trust attributes (integrity, competence, and benevolence) is likely to be found with experienced subjects because they can refer to past experience, and may fall into the error of one-attribute rating. Inexperienced subjects, on the other hand, do not have any personal experience doing online auctions, thus halo effect has less impact on the way they perceive the theoretical attributes of TIS.

Businesses should be very interested in identifying the aspects of user experience that produce strong halo effects. This knowledge will help the e-tailers to craft new business strategies for changing the perceptions of buyers and potential buyers. Many e-businesses have invested huge resources on advertising and marketing in order to attract new customers, but neglect the importance of trust, which is the threshold buyers must cross before they make bids. Trust fosters loyalty; loyalty breeds customer retention, which is a requirement for e-commerce success. In the e-speed era, the turnover of the customer base is larger because clicking a mouse is so quick and easy. This makes customer loyalty more important than ever. Recruiting and retaining customers is so costly that understanding how buyers conceptualize TIS is critical. If seller trustworthiness is in doubt, buyers will be less likely to continue auctioning online even if the auction site itself provides good service. To retain customers, the e-tailers have to make them trust the seller and the trading environment. Shao Yibo, founder and chief executive office of EachNet, China's largest online trading house, commented that a lack of trustworthiness is still one of the bottlenecks handicapping the rapid development of online auctions in China.[2]

Limitations and Suggestions for Future Research

Besides the user's experience, other contextual factors, such as culture, age, Internet usage years, innovativeness, computer literacy, and other demographic characteristics may affect the propensity to trust in e-commerce and perception of seller trustworthiness. However, they are not controlled here. Most of the survey subjects are college students, who are frequent Internet users, with similar age and income, as well as education and cultural backgrounds. Thus, the impact of contextual factors on the model would be minimized, even though it may limit the generalization of the findings.

Nevertheless, this study took a first step in conceptualizing and measuring the construct of TIS in online auctions. A convenience sampling method was adopted and a majority of the subjects were undergraduate students. The factor structure reported in the literature could not be replicated; the three-factor structure proposed by McKnight et al. (2002a) produced heavy factor cross-loadings, which means some of the items were found to load heavily, approximately +/-.3 (Hair et al. 1995), with factors other than the expected ones. This could be due, in part, to culturally specific differences in how the items were perceived and common method biases in behavioral research, in addition to the halo effect discussed above.

In fact, to control the method biases influencing the results, some procedures were adopted to check and prevent the method effects produced by respondent, item characteristics, and item context. For example, the questions are randomly ordered and negative wordings are used to check acquiescence response set and response pattern biases. Verbal labels are provided to improve the problem of item ambiguity. A clear instruction is given on the first page of the questionnaire to assure respondents of confidentiality and encourage them to answer questions based on their true feelings. Still, some procedural remedies, such as obtaining data from different sources other than the questionnaire (i.e., quasi-experiment) and using longitudinal studies for understanding how trust is developed over time as a result of technical and environmental changes, and experience accumulated over time, would be adopted in future. Also, the survey will be conducted with general Internet users, instead of college students, which would make the samples more representative.

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[2]"Online Auction to Reap Harvest," China Internet Information Center, 2002 (available online at **http://www.china.org.cn/english/BAT/54672.htm**; accessed December 5, 2003).

A further study of halo effect on the relationship of experience and perceived trustworthiness is being carried out. The intention is to explore how satisfaction or dissatisfaction with previous online auction experiences affects the way buyers conceptualize TIS. In addition, future research looks at the intermediary (i.e., the auction site) to investigate whether the *brand* of the site (impact of familiarity) affects the capability of the buyers to identify specific trust dimensions. It will also attempt to identify the attributes of experience with intermediaries that generate a strong halo effect. Following this, future plans are to examine the effect of halo on the conceptualization of buyer trust in the intermediary (TII), the correlation between TIS and TII, and their joint effect on the buyer's overall trust in the online auction process.

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