



# Buyer satisfaction and loyalty intention in online auctions

Buyer  
satisfaction and  
loyalty intention

## Online auction web site versus online auction seller

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### Abstract

**Purpose** – The purpose of this paper is to examine the issue of the influential factors of buyer satisfaction and loyalty toward online auction web sites and online auction sellers. Customers' loyalty toward the online auction web site and seller is also explored.

**Design/methodology/approach** – An internet survey is conducted on 221 buyers of online auction.

**Findings** – Loyalty intention toward an online auction seller positively affects a buyer's loyalty intention toward the online auction web site, whereas his/her loyalty intention toward the online auction web site negatively affects his/her loyalty intention toward the online auction seller.

**Research limitations/implications** – The first is in its cross-sectional design. Second, this paper examines the antecedents of the online auction web site and the online auction seller in a single country. The findings may have limited generalizability to other countries.

**Practical implications** – The results of this paper provide less positive news for online auction sellers. Sellers on an online auction web site should be careful in making online auction web site change decisions. Although a seller can secure buyer loyalty intention by providing strong e-service quality, overall satisfaction and the specific asset investment (SAI), buyers still may not be enthusiastic about moving with the seller to another auction web site.

**Originality/value** – This paper contributes to comparing the pulling force of the web sites and the sellers, and explains that SAI can affect the buyers through web sites and sellers. There are three parties involved in the model.

**Keywords** Internet, Consumer behaviour, Auctions, Electronic commerce, Customer services quality, Taiwan

**Paper type** Research paper



### Introduction

Online auctions web sites are becoming increasingly more important as an intermediary for both sellers and buyers (Lucking-Reiley *et al.*, 2007). The online auction market in Taiwan is estimated to reach US\$3.3 billion by 2008, according to Marketing Intelligence Center, Taiwan. Traditionally, online auction web sites serve

individuals who want to buy and sell collectibles via the auction process. However, increasingly, online auction web sites are also acting as a store-front for new goods that are sold by small-medium retailers at fixed prices (Aldridge, 2004), which is called “buy-it-now (BIN)” function. The BIN function is especially popular in the Asia Pacific market, this unique phenomena may relate to the “uncertainty avoidance” culture in Asia (Khanna and Palepu, 1997; Hofstede, 2001) since this function gives consumers more certainty than bidding. eBay which focused on the traditional online auction function when entering the Asia market had difficulty competing with many Asian local sites that focused on addressing the needs of small-to medium-sized independent retailers in the business-to-consumer segment (Song, 2006; Vara and Chao, 2006). Small retailers who initially explore online auctions as an additional channel are gradually moving their businesses to online auctions (Walczak *et al.*, 2006).

Like other distribution channels, online auction web sites normally charge listing and transaction fees to sellers. Normally, the larger the pool of sellers and buyers, the greater the bargaining power of the auction web site. Therefore, in order to increase the pool size of sellers and buyers, many new online auction web sites (generic or specialty) offer low or even free listing and transaction fees to attract new sellers (Doebele, 2005). Established online auction web sites continually face competition from new challengers. Even eBay used a penetration pricing strategy, when it first entered Chinese, Korean, Japanese, and Taiwanese markets in order to gain ground.

When sellers become more and more established on an online auction web site, the conflict of interests between the online auction web site and sellers on the online auction web site becomes intense. To avoid being charged high transaction fees, a seller may persuade its buyers to move with it to a lower-cost auction web site or to place orders at these lower cost sites if a seller in an online auction web site can create a strong transaction relationship with buyers. Therefore, it is important for marketers of an online auction web site to understand the sources of buyer satisfaction and loyalty in order to devise a competitive strategy in the marketplace. If the sources of satisfaction and loyalty of the auction buyer are basically from a specific seller on the online auction web site, rather than the online auction web site itself, the online auction seller should have more power to persuade his/her buyers to move with him/her or to place orders at a lower-cost online auction web site. On the other hand, if the buyer’s sources of satisfaction and loyalty are basically from the auction web site rather than the seller, the online auction web site should have stronger bargaining powers to maintain its list fees. Online auction web site marketers must examine the sources of buyer satisfaction and loyalty carefully in order to constitute the best marketing strategy and to find ways to promote its web site’s sellers while deterring buyers from sticking with a specific seller.

In sum, the primary purpose of this paper is to examine the issue of the determinants of buyer satisfaction and loyalty toward online auction web sites and online auction sellers. The story is not complete to examine only the determinants of buyer satisfaction and loyalty toward online auction web sites. The different strengths of satisfaction and loyalty on the two parties (the online auction web site and the independent seller) have different implications for auction web site owners and sellers. Specifically, this study explores the antecedents of satisfaction and loyalty on both the online auction web site and the online auction seller. In addition, it also explores the relationship between loyalty toward the online auction web site and loyalty toward

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the online auction seller. Does a buyer's loyalty toward an online auction web site affect his/her loyalty toward the online auction sellers on the site? And does a buyer's loyalty toward the seller on the online auction web site affect his/her loyalty toward the online auction web site?

Accordingly, the paper is organized as follows. In the next section, we provide the conceptual framework and research hypotheses. This section is followed by a description of our methodology and the results of hypotheses testing. Finally, we conclude with a discussion of results and marketing implications.

## Literature review and hypothesis

### *E-service quality*

The importance of service quality on consumer satisfaction and loyalty is studied extensively and confirmed in several studies (Parasuraman and Zeithaml, 2002). SERVQUAL is one of the most often used scales to examine consumer-perceived service quality (Parasuraman and Zeithaml, 2002). The scale measures service quality on five dimensions: reliability, responsiveness, assurance, empathy, and tangibles. Although traditional service quality scales provide reliable and valid measures for researchers to examine people-delivered service quality issues, its suitability to examine e-commerce service quality is questionable (Parasuraman *et al.*, 2005). For example, Gefen (2002) extends the SERVQUAL conceptualization to the electronic context and finds that the five-service quality dimensions collapse into three.

In recent years, several e-service quality scales are developed. For example, Loiacono *et al.* (2000) are among the first to create WebQual, a scale for rating web sites on 12 dimensions: information fit to task, interaction, trust, response time, design, intuitiveness, visual appeal, innovativeness, flow-emotional appeal, integrated communication, business process, and substitutability. However, the primary purpose of this scale is to generate information for web site designers rather than to measure service quality as consumers experience it. Yoo and Donthu (2001) develop SITEQUAL to measure site quality on four dimensions: ease of use, aesthetic design, process speed, and security. This scale provides a good measure of the quality of a web site. However, it does not capture all aspects of the purchasing process and, therefore, does not constitute a comprehensive assessment of a web site's service quality (Parasuraman *et al.*, 2005).

Wolfenbarger and Gilly (2003) develop a 14-item scale called eTailQ. The scale includes four factors: web site design, reliability/fulfillment, privacy/security, and customer service. The development of the scale is very comprehensive; various research methods, such as online and offline focus groups, sorting tasks, and online customer panel survey, are used in the process of developing the scale. The scale's web site design and customer service sub-dimension, however, is challenged by Parasuraman *et al.* (2005) for its lack of internal consistency and distinctiveness. Parasuraman *et al.* (2005) use the means-end framework as a theoretical foundation to develop e-core service quality scale (E-S-Qual) and e-recovery service quality scale (E-RecS-QUAL) scales. E-S-Qual includes 22-item scale of four dimensions: efficiency, fulfillment, system availability, and privacy. E-RecS-QUAL contains eleven items in three dimensions: responsiveness, compensation, and contact. Both scales demonstrate adequate psychometric properties based on findings from a variety of reliability and validity tests.

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Although the scale is comprehensive, it deals mostly with online shopping sites. Parasuraman *et al.* (2005) suggest that researchers who use E-S-Qual and E-RecS-QUAL on other internet sites, such as online newspaper, customer-to-customer sites, and portals, should modify the scale. For example, Yen and Lu (2008) mentioned that most studies discussing e-service quality focus on web site, and therefore adapted scales of Parasuraman *et al.* (2005) to the online auction transaction process (i.e. C2C in Yen and Lu's study).

*E-service quality of online auction web sites and online auction sellers*

Buyers who operate on an auction web site perceive service quality in terms of both the auction web site and the sellers on the site. Based on the sub-dimensions of the E-S-Qual and E-RecS-QUAL scales, perception of the e-service quality of the auction web site should include web site efficiency and system availability, privacy, contact, and compensation. The first two dimensions capture the design, convenience, ease of use, system flow, and availability of the auction web site, which are the basic infrastructures that an online auction web site should provide for both its sellers and buyers. Privacy relates to whether the auction web site protects personal data, web surfing behavior, and credit information. Online auction web sites keep all of the personal information of their buyers and sellers; trust that the online auction web site will protect this personal information is very important (Urban *et al.*, 2000). Contact is whether the online auction web site is easy to be contacted. Finally, compensation represents whether the web site compensates its buyers for the problems it creates. Normally, an online auction web site provides protection programs to protect against losses from online transactions. This is the so-called transaction protection program on eBay. Responsiveness and fulfillment are not included to measure the e-service quality of the auction web site because most of the order fulfillment and response are handled by the seller. Auction web sites only act as an information intermediate for the transaction.

On the other hand, the perception of the e-service quality of the online auction seller should include fulfillment, responsiveness, compensation, and contact. Basically, an online auction web site is only the channel for a seller to sell his/her products and services. The site charges sellers a fee to list items for sale and collects a percentage of the total sale in transaction fees once the item is sold. A seller must ensure order fulfillment and buyer responses. Therefore, fulfillment service quality of the online auction seller is related to whether the seller delivers the promised orders according to the agree-upon schedule (Parasuraman *et al.*, 2005). Responsiveness regards whether the seller takes care of problems (orders or returns) promptly. In addition to compensation that results from the online auction web site, sellers on the web site normally provide compensation for transaction problems that he/she creates in order to gain trust and good credit from buyers. Finally, contact is also a very important dimension of service quality for auction sellers. Buyers contact sellers before, during, and after an order is placed. Whether the seller provides an adequate contact method is very important to the buyer's service quality perception toward the seller. A pretest will be conducted to confirm this classification and wording of the scales. System availability and privacy are not included to measure the e-service quality of the auction seller because web site system is mostly controlled by the auction web site and credit information is normally kept at the auction web site instead of the sellers.

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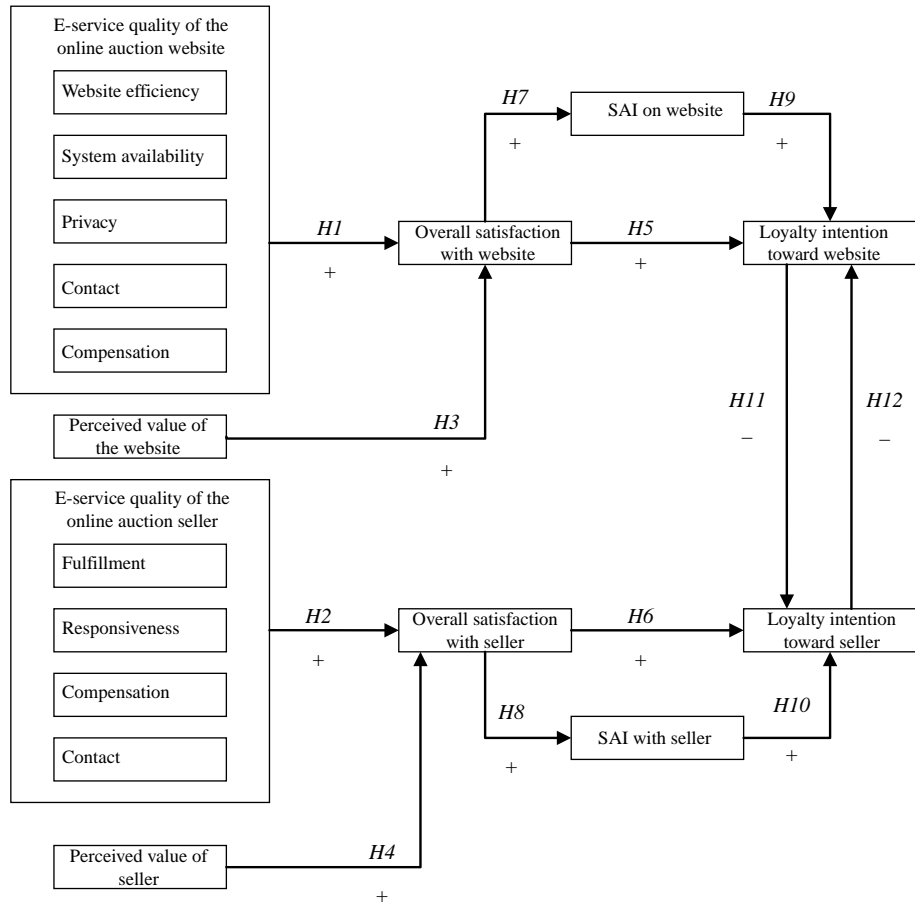
*The effects of e-service quality on overall satisfaction*

Satisfaction is defined as “pleasurable fulfillment” (Oliver, 1999) and cumulative satisfaction is considered an affective response in Oliver’s (1999) loyalty framework. It is the cumulative satisfaction that stems from an aggregate of e-service encounter experiences (Bitner and Hubbert, 1994; Rust and Oliver, 1994). In the current study, customer’s overall satisfaction, which is distinguished from transaction-specific customer satisfaction, is an immediate post-purchase evaluative judgment or an affective reaction to the most recent transactional experience. In addition, both e-service quality of online auction web sites and online auction sellers are cognitive responses at the attribute level; they are transaction-specific, whereas overall satisfaction is relationship-specific (Shankar *et al.*, 2003). In short, transaction-specific means service encounter satisfaction and relationship-specific is overall customer satisfaction. In this study, overall satisfaction is the cumulative effect of a set of discrete interaction with the service provider over a period of time (Bitner and Hubbert, 1994; Oliver, 1997; Rust and Oliver, 1994). For instance, regarding buyer’s e-service quality perception toward online auction web site and online auction seller, consumers will be satisfied not only when having a good transaction experiences with sellers, but also when having good infrastructures-using experiences which belongs to the web site (Parasuraman *et al.*, 2005; Bauer *et al.*, 2006).

Therefore, evaluation of the encounters with the e-service quality of online auction web sites and online auction sellers form the foundation of buyers’ overall satisfactions. Thus, it is predicted that the e-service quality of an online auction web site will positively affect buyers’ overall satisfaction toward the online auction web site, while the e-service quality of the online auction seller will positively influence buyers’ overall satisfaction toward the online auction seller. Figure 1 shows the research framework.

Therefore, it is hypothesized that:

- H1.* The e-service quality of an online auction web site will affect the overall satisfaction of the buyer toward the online auction web site; including.
  - H1a.* The efficiency of an online auction web site will positively affect the overall satisfaction of the buyer toward the online auction web site.
  - H1b.* The system availability of an online auction web site will positively affect the overall satisfaction of the buyer toward the online auction web site.
  - H1c.* The privacy of an online auction web site will positively affect the overall satisfaction of the buyer toward the online auction web site.
  - H1d.* The compensation of an online auction web site will positively affect the overall satisfaction of the buyer toward the online auction web site.
  - H1e.* The contact of an online auction web site will positively affect the overall satisfaction of the buyer toward the online auction web site.
- H2.* The e-service quality of an auction seller will affect the overall satisfaction of the buyer toward the online auction seller; including.
  - H2a.* The fulfillment of an auction seller will positively affect the overall satisfaction of the buyer toward the online auction seller.



**Figure 1.**  
Research framework

*H2b.* The responsiveness of an auction seller will positively affect the overall satisfaction of the buyer toward the online auction seller.

*H2c.* The compensation of an auction seller will positively affect the overall satisfaction of the buyer toward the online auction seller.

*H2d.* The contact of an auction seller will positively affect the overall satisfaction of the buyer toward the online auction seller.

*Perceived value of the online auction web site and seller*

As defined by Zeithaml (1988), perceived value is a consumer’s overall assessment of the utility of a product or service based on perceptions of what is received and what is given. It is the trade-off that exists between received benefit and cost. In a cross-cultural survey of the perceived value of web sites, Steenkamp and Geyskens (2006) define perceived value of web sites as an interactive, relativistic,

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preference experience that after visiting a web site (Steenkamp and Geyskens, 2006). This definition is based on a person's value judgment toward the web site.

Based on the above definitions, the perceived value of online auction web sites and online auction sellers is defined as to whether the online auction web site and the online auction seller offer price/value products, more product choices, and more credible sellers than other auction web sites. More product choices and sellers can significantly reduce the searching cost of the buyer for a given benefit they received from other auction web sites. The preference element of perceived value defined by Steenkamp and Geyskens (2006) is not included in our definition because this element has overlap with the loyalty intention construct in our model. In Steenkamp and Geyskens' (2006) definition, value involves preference, which includes the intention to act on the evaluation.

Past literature finds that the influence of perceived value on loyalty is mediated by customer overall satisfaction (Spreng *et al.*, 1993; Patterson and Spreng, 1997; Andreassen and Lindestad, 1998; Zins, 2001). In efforts to conceptualize the relationship between quality, satisfaction, value, and behavioral intentions, Cronin *et al.* (2000) find that perceived value has direct and positive impacts on overall satisfaction. Similarly, Patterson and Spreng (1997) find that perceived value directly affects overall satisfaction. Thus, if a buyer believes that a given auction web site or seller creates higher value than alternatives; the buyer is likely to be more satisfied with the auction web site or the seller (Simpson *et al.*, 2001). Thus:

- H3.* An auction buyer's perceived value of purchasing from the online auction web site will positively affect his/her overall satisfaction toward the online auction web site.
- H4.* An auction buyer's perceived value of purchasing from the online auction seller will positively affect his/her overall satisfaction toward the online auction seller.

#### *Overall satisfaction and loyalty*

In Oliver's (1997) definition, loyalty is described as:

[...] a deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand owner-brand purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior.

In an internet auction setting, if a buyer is loyal to an online auction web site and/or an online auction seller as a whole, she/he will praise the online auction web site and/or an online auction seller, express preference for the web site and/or seller over others, and increase the volume of his/her purchases on the online auction web site and/or seller as a whole (Zeithaml *et al.*, 1996).

Anderson and Srinivasan (2003) defined e-satisfaction as the contentment of customer with respect to his/her prior purchasing experience with a given electronic commerce. Satisfied consumers are more likely to repeat purchases, to resist competitive offers and to generate positive word of mouth advertising (Cronin and Taylor, 1992; Anderson and Sullivan, 1993; Zeithaml *et al.*, 1996; Bolton, 1998; Bolton and Lemon, 1999). Research in the American Customer Satisfaction Index provides

additional empirical support for loyalty responses as the major consequence of consumer satisfaction (Fornell *et al.*, 1996). Therefore, we model a direct effect of overall satisfaction to loyalty intention. Thus:

- H5. Overall satisfaction with an online auction web site will positively affect buyers' loyalty intentions toward the online auction web site.
- H6. Overall satisfaction with an online auction seller will positively affect buyers' loyalty intentions toward the online auction seller.

*Specific asset investment*

In order to retain customer and encourage repurchase, firms may try to create a specific asset with customers, and increase the switching costs when they try to switch to other firms. Specific asset investment (SAI) refers to those investments that are dedicated to a particular transaction partner and whose redeployment entails considerable switching costs (Williamson, 1985). Idiosyncratic SAIs to support a particular exchange relationship may take different forms, including: physical or monetary assets, knowledge, personal relationships, skills and so on (Williamson, 1991; Chiou and Droge, 2006). In our model, we develop two constructs that relate to SAI: buyers' SAIs with the online auction web site and buyers' SAIs with online auction sellers.

Buyers' SAIs with the online auction web site refers to investments in physical or human assets that are dedicated to a particular auction web site and whose redeployment entails considerable switching cost (Heide, 1994; Joshi and Stump, 1999). For example, switching costs for buyers might entail losing his/her accumulated credit points on the web site if she/he switches to another auction web site for purchases. She/he also must take time to become acquainted with the flow, system, function, and business process of the auction web site when switching to other online auction web site for his/her purchase. Similarly, buyers' SAIs with auction sellers refers to investments in physical or human assets that are dedicated to a particular brand owner and whose redeployment entails considerable switching cost. For example, buyers may need to learn a particular seller's specific processes of business transaction and spend time to be acquainted with several different product types, functions, combinations, and suitability for occasion of the seller's product offering; this leads to knowledge asset specificity.

SAI can be viewed as a type of switching cost (Dick and Basu, 1994; Hauser *et al.*, 1994; Jones *et al.*, 2000; Lee and Cunningham, 2001; Lee *et al.*, 2001; Burnham *et al.*, 2003), which points to ways in which a firm can engender idiosyncratic assets on the part of the buyer. A consumer's SAI in a provider gives that provider some control over the consumer (Jap and Ganesan, 2000). The most prominent business to business solution offered by transaction cost analysis to safeguard SAIs is vertical integration (Williamson, 1985). However, unlike firms, it is very difficult for a consumer to vertically integrate the functions that are provided by the provider (DiMaggio and Louch, 1998). Therefore, rational buyers will try to avoid dependency on unsatisfactory relationships by reducing the buildup of SAI. On the other hand, a buyer will increase SAI with a satisfactory online auction web site or online auction seller. Therefore:

- H7. An auction buyer's overall satisfaction with the online auction web site will positively affect his/her SAIs on the online auction web site.



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- H8.* An auction buyer's overall satisfaction with the auction seller will positively affect his/her SAIs on the online auction seller.

Asset specificity creates dependency as considerable switching costs are required in order to replace the service provider (Heide and John, 1988; Joshi and Stump, 1999). Switching costs include losing benefits from existing service providers (Berry and Parasuraman, 1991). If customers find alternatives and perceive that benefits from new service providers excel the switching costs, they may take the alternative. In accordance with above statements, we propose that loyalty intention is affected by SAI as well, since most SAIs are built up because of the buyer's willingness to engage in a long-term relationship. As Williamson (1985) said, a long-term orientation may be a prerequisite to securing the rent from SAI, based on this proposition, Klemperer (1987) and Wernerfelt (1985) concluded that asset specificity should be a direct antecedent of loyalty.

The higher switching costs led by the SAIs, the higher effects that "hold up" the consumers, and it will bring about the loyalty of the consumers (Shapiro and Varian, 1998). In addition, buyers may gradually perceive that SAI enhance the exchange efficiency (Gwinner *et al.*, 1998; Stauss *et al.*, 2001), and consequently become more loyalty to the sellers. Take online shopping web site for example, buyer would communicate with seller more efficiently because he/she already build human-specific asset with the seller. Another example is the appraisal system rating by seller and buyer, both seller and buyer give positive or negative "credit" to each other after the deal is completed, therefore, everyone can check the credit of potential buyer/seller and decide whether to deal with him/her or not. The more positive credit you get, the more trustworthy you are, more importantly, the credit is not "transferable" between auction web sites, hence buyer/seller create SAI with Yahoo, especially those with many positive credit.

Therefore:

- H9.* An auction buyer's SAIs on the online auction web site will positively affect his/her loyalty intention toward the online auction web site.
- H10.* An auction buyer's SAIs on the online auction seller will positively affect his/her loyalty intention on the online auction seller.

#### *Online auction web site loyalty and online auction seller loyalty*

The relationship between online auction web sites and online auction sellers is both cooperative and competitive. Auction sellers do hope that auction web sites can attract more buyers to visit the online auction web site. However, if an online auction web site can secure loyalty from these buyers, it will gain more power to regulate sellers on the online auction web site. As a consequence, a seller may be charged higher fees for listing and sales. On the other hand, if an online auction seller can secure loyalty from buyers, he/she can rely less on a specific online auction web site and avoid being charged high transaction and listing fees. Consequently, both the online auction web site and online auction seller are eager to create loyalty from the auction buyers.

Therefore, it is interesting to explore the relationship between buyers' loyalty toward online auction web sites and their loyalty toward online auction sellers. Past research regarding store and brand loyalty found that store loyalty is only weakly

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associated with brand loyalty (Cunningham, 1961; Carman, 1970; East *et al.*, 1995a, b). Carman (1970) suggested that the positive and weak relationship between brand and store loyalty arose from an aversion to exploratory shopping. He also noted that a restricted store patronage reduces the number of brands confronted by the shopper who cannot therefore diversify brand purchase so much. High store loyalty can reduce time costs and simplify shopping, and may be used more by those who both need to be efficient and possess appropriate resources. Therefore, those who are highly store loyal will be less likely to visit other stores for a certain brand (East *et al.*, 1995b).

In an internet auction setting, the auction web site is just like a retailer and the seller in the auction web site is like an individual brand. It is proposed that there is also a weak first order relationship between auction web site loyalty and seller loyalty, and this weak relationship is caused by the contradicted reciprocal relationship between these two loyalty constructs. Specifically, it is argued that auction web site loyalty influences seller loyalty negatively, whereas seller loyalty affects auction web site loyalty positively.

Regarding to the negative relationship, a buyer's loyalty behavior toward an auction web site can significantly reduce his/her time and effort in searching among different web sites for a certain product. Therefore, being loyal to an auction web site will reduce the number of sellers confronted by the buyers in the internet which result in the negative effect of auction web site loyalty on seller loyalty. More specifically, if a buyer is loyal to an online auction web site as a whole, she/he will express preference toward the site over others, and increase the volume of his/her purchases on the online auction web site as a whole (Zeithaml *et al.*, 1996). They will also reduce their visit on other auction web sites for a certain seller. This, in turn, will reduce his/her loyalty toward a specific seller. One may argue that if a seller is an exclusive distributor for a certain brand, a brand loyal customer will still visit its store even it is located in other auction web site. This contention is possible. However, most sellers in an auction web site are small firms. Few sellers can be an exclusive dealer for a certain brand. Therefore, it is predicted that the greater the online auction web site loyalty intention of the buyer, the lower the online auction seller loyalty intention:

*H11.* An auction buyer's loyalty intention toward the online auction web site will negatively affect his/her loyalty intention toward the online auction seller.

On the other hand, the influence of the loyalty intention toward an auction seller on the loyalty intention toward an online auction web site is predicted to be positive. If a buyer is loyal to an online auction seller, she/he will praise the online auction seller, express preference for the online auction seller over others, and increase the volume of his/her purchases with the online auction seller (Zeithaml *et al.*, 1996). To a buyer, however, the seller is met on the online auction web site, she/he will credit the online auction web site for attracting good sellers onto its online auction web site. Similar to the rationale of *H11*, knowing that an auction web site has the capability to attract good and strong sellers will positively reinforce a buyer's loyalty toward the auction web site because this loyalty behavior can reduce his/her time and effort of searching among different auction web sites (East *et al.*, 1995b). In addition, during the search and transaction process, the service of the online auction seller cannot be completed without the help from the online auction web site. Therefore, loyalty intention toward the seller will positively affect the online auction web site's loyalty intention:

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H12. An auction buyer's loyalty intention toward the online auction seller will positively affect his/her loyalty intention toward the online auction web site.

Buyer  
satisfaction and  
loyalty intention

## Method

### *Study respondents*

To reach online auction buyers, an internet-based survey is employed for information gathering. With cooperation from the web sites, we post an invitation letter in the discussion forums of two major online auction web sites, which include Yahoo! auction and Ruten, in Taiwan. Ruten is a joint venture between PChome Taiwan and eBay, after eBay withdrew from the Taiwanese market in mid-2006. The Ruten auction web site vows to enable people to buy and sell at fixed prices (BIN), which is one of the major competitive strategies for Yahoo! auction in Asia Pacific and Japanese markets. In order to attract buyers and sellers to the auction web site, Ruten offers free listing and transaction fees. The online auction market in Taiwan is estimated to reach US\$2.4 billion by 2007, according to Marketing Intelligence Center, Taiwan.

As part of the study, a hyperlink is posted in each web site forum that links respondents to a web-based questionnaire that is included in the invitation letter. The respondents are guaranteed that all answers are anonymous and about 5 percent of the respondents are randomly selected to receive a free iPod shuffle to encourage individuals to complete the questionnaire. All respondents must type in their correct e-mail address in order for researchers to contact him/her if his/her name is drawn by the random lottery. These e-mail addresses enable researchers to double-check for questionnaire quality more precisely. To ensure that all respondents have experiences as buyers on the online auction web site recently, only those that purchase at least once in the past three months are included in the sample. A total of 221 respondents successfully complete the questionnaire. To ensure there is no duplicated respondent, we ask the respondents to leave his/her e-mail address, and employ the intellectual property-checking technology. Our sampling method is successful in soliciting respondents with varied personal characteristics, and the background proportion is consistent with surveys of typical online auction buyers in Taiwan. The respondents vary in gender (female, 73.8 percent; male, 26.2 percent), age (<18 years of age, 13.2 percent; 19-23 years of age, 32.6 percent; 24-28 years of age, 29 percent; 29-35 years of age, 20 percent; >36 years of age, 3.6 percent), and education (high school and below, 23.2 percent; university or higher 76.8 percent), most often use of online auction web site (Yahoo, 85.6; Ruten, 13.4 percent), and new or used product preference (new product, 63.7 percent; used product, 5.8; indifferent, 30.5 percent). The profile of our respondents is consistent with the recent national survey by Insightexplorer Limited ([www.insightexplorer.com](http://www.insightexplorer.com)) at the end of 2006, which finds that females and those aged 25-34 are the majority of buyers on online auction web sites. Yahoo! auction is also the major online auction web site (the ever used rate is 96.8 percent for Yahoo! auction and 22.4 percent for Ruten). More than 62.4 percent buyers prefer purchasing new products instead of used ones on the online auction web site. The data also confirms that most buyers purchase products directly from the auction web site instead of through other auction processes (BIN, 78.8 percent; auction, 21.2 percent).

### *Measure development*

*Pretest.* According to our previous discussion, the buyer behavior in Asia is different from that of the Western market. Owing to not all elements of the scale are suitable for

the online auction industry, we conduct pretests to explore the concerned e-service quality, perceived value, and specific assessment investment of Taiwanese buyers. The original scales are modified based on the result of these pretests.

Two faculty members of a national university in Taiwan provide modification comments and come out a simple structure that is easy to interpret. We invite 30 respondents including experienced sellers and buyers to join a pretest. Measurements are then modified according to the pretest result.

Special attention is given to the dimensions of e-service quality of the auction web site and the auction seller. The results of the pretest show that it is adequate to include web site efficiency and system availability, privacy, contact, and compensation for the measurement regarding e-service quality of the auction web site. The pretest also shows that the perception of the e-service quality of the online auction seller should include fulfillment, responsiveness, compensation, and contact.

The wordings of the scale in our questionnaire are the same as the Parasuraman *et al.*'s (2005) scale except two dimensions of the auction web site's e-service quality. The first dimension is efficiency. Two more questions:

- (1) This site's auction system enables me to manage my auction efficiently?
- (2) The system of this site's make me easy to find good priced products, were added to explore the basic function of an auction web site?

The second dimension is compensation. Since auction web sites do not deliver the product to buyers by itself, the original measure "It compensate me when what I ordered doesn't arrive on time" was changed to "This site offers comprehensive buyer protection program" and the original measure "It picks up items I want to return from my home or business" was changed to "This site proactively involves in solving transaction disputes."

*Questionnaire development.* The questionnaire are in Chinese but were originally constructed in English. We employ conventional translation and back-translation (Brislin, 1980), which was done by two Chinese bilingual academics independently. We then gave the two versions of questionnaire to a third Chinese academic to check whether the Chinese version had achieved accuracy "decentered" from a literal English language translation.

There are two parts of the questionnaire: the first part focuses on the variables with regard to the online auction web site and the second part focuses on the online auction seller. The respondents are asked their two most-often used online auction web sites in the beginning session. To increase variances of the data, half of the respondents answer questions that are based on the most-often used online auction web site and the other half answer questions based on the second most-often used online auction web site.

Self-administrated questionnaires are used for all measures. Where possible, established scales are used to measure the latent constructs in this study (Table I). Measures of service quality of the online auction web site and online auction sellers are based on E-S-Qual and E-RecS-QUAL (Parasuraman *et al.*, 2005) and with some modifications as mentioned in the last section.

The perceived value of using online auction web sites and online auction sellers focuses on whether the web site and its sellers have product variety and price competitiveness. The measures of perceived value are developed by consulting the

Item	Loading ( <i>t</i> -value)	$\alpha$
<i>E-service quality of online auction web site</i>		
<i>Efficiency</i>		
This site makes it easy to find what I need	0.72 (12.07)	0.91
This site makes it easy to get anywhere on the site	0.70 (11.79)	
This site enables me to complete a transaction quickly	0.79 (13.88)	
Information at this site is well organized	0.77 (13.28)	
This site loads its pages fast	0.71	
This site is simple to use	0.84 (15.31)	
This site enables me to get on to it quickly	0.83 (15.07)	
This site is well organized	0.46 (7.10)	
This site's auction system enable me to manage my auction efficiently	0.76 (13.05)	
The system of this site's make me easy to find good priced products	0.55 (8.57)	
<i>System availability</i>		
This site is always available for business	0.88 (16.12)	0.88
This site launches and runs right away	0.91 (17.31)	
This site does not crash	0.66 (10.69)	
Pages at this site do not freeze after I enter my order information	0.69 (11.33)	
<i>Privacy</i>		
This site protects information about my web-shopping behavior	0.87 (16.22)	0.94
This site does not share my personal information with other sites	0.95 (18.55)	
This site protects information about my credit card	0.92 (17.76)	
<i>Contact</i>		
This site provides a telephone number to reach the company	0.87 (15.67)	0.88
This site has customer service representatives available online	0.75 (12.57)	
This site offers the ability to speak to a live person if there is a problem	0.92 (17.07)	
<i>Compensation</i>		
This site helps me resolve transaction dispute when there is one	0.89 (16.85)	0.93
This site offers comprehensive buyer protection program	0.85 (15.64)	
This site proactively involves in solving transaction disputes	0.97 (19.32)	
<i>E-service quality of seller in the online auction web site</i>		
<i>Fulfillment</i>		
The seller delivers order when promised	0.92 (19.75)	0.96
The seller makes items available for delivery within a suitable time frame	0.95 (19.11)	
The seller quickly delivers what I order	0.95 (18.94)	
The seller sends out the items ordered	0.93 (18.33)	
The seller has in stock the items the company claims to have	0.62 (10.07)	
It is truthful about the seller's offerings	0.90 (17.35)	
The seller makes accurate promises about delivery of products	0.91 (17.67)	
<i>Responsiveness</i>		
The seller provides me with convenient options for returning items	0.83 (15.19)	0.96
The seller handles product returns well	0.92 (17.85)	
The seller offers a meaningful guarantee	0.89 (17.02)	
The seller tells me what to do if my transaction is not processed	0.94 (18.68)	
The seller takes care of problems promptly	0.94 (18.56)	
<i>Compensation</i>		
The seller compensates me for problems he creates	0.93 (18.13)	0.91
The seller compensates me when what I ordered doesn't arrive on time	0.88 (16.47)	
The seller picks up items I want to return from my home or business	0.80 (14.04)	

(continued)

**Table I.**  
Measurement scale

Item	Loading ( <i>t</i> -value)	$\alpha$
<i>Contact</i>		
The seller provides a telephone number to reach the company	0.95 (18.95)	0.94
The seller has customer service representatives available online	0.86 (16.06)	
The seller offers the ability to speak to a live person if there is a problem	0.96 (19.13)	
<i>Perceived value of purchasing from the online auction website</i>		
I can easily find price/value product from the auction web site because it carry a large pool of product varieties	0.85 (15.03)	0.84
I have more seller choices because it carries a large pool of sellers	0.91 (16.84)	
I have confidence in this web site because it carries a large pool of good credit sellers	0.65 (10.35)	
<i>Perceived value of purchasing from the seller</i>		
The seller's products are very unique	0.65 (10.26)	0.79
The seller's products are very price competitive	0.84 (14.55)	
The seller carries a large pool of product varieties	0.74 (12.37)	
<i>Overall satisfaction of the online auction web site</i>		
I am happy about my decision to choose the online auction web site	0.89 (16.79)	0.93
I believe I did the right thing when I used the online auction web site	0.93 (18.17)	
Overall, I am satisfied with the decision to use the online auction web site	0.90 (17.25)	
<i>Overall satisfaction of the online auction seller</i>		
I am happy about my decision to choose the online auction seller	0.97 (19.88)	0.97
I believe I did the right thing when I used the online auction seller	0.96 (19.22)	
Overall, I am satisfied with the decision to use the online auction seller	0.94 (18.68)	
<i>SAI on the online auction web site</i>		
I will not be used to the interface of other web site, if I switch to other online auction web site	0.75 (11.43)	0.61
I have to spend a lot of time to understand how to use an online auction web site, if I switch to other online auction web site	0.83 (12.95)	
I will lose the credit point of current online auction web site, if I switch to other online auction web site	0.51 (7.28)	
I do not really care whether I should continue to use this online auction web site or not (R)	0.20 (2.71)	
<i>SAI on the online auction seller</i>		
I will not be used to the transaction method, if I switch to other seller	0.77 (12.75)	0.85
I will lose the special treatment benefit if I switch to other seller	0.74 (12.06)	
I have spend a lot of efforts in evaluating whether the seller meet my needs	0.73 (11.89)	
I have to spend a lot of time to get used to the communication style of the seller, if I switch to other seller.	0.81 (13.64)	
<i>Loyalty toward the online auction web site</i>		
If I had to do it over again, I would choose the online auction web site	0.91 (17.36)	0.91
I try to use the online auction web site because it is the best choice for me	0.90 (17.10)	
I consider myself to be a loyal patron of the online auction web site	0.83 (14.66)	
<i>Loyalty toward the online auction seller</i>		
If I had to do it over again, I would choose the online auction seller	0.93 (18.07)	0.90
I try to use the online auction seller because it is the best choice for me	0.95 (18.62)	
I consider myself to be a loyal patron of the online auction seller	0.73 (12.51)	

Table I.

five-point Likert scales that are developed by Zeithaml (1988) and Steenkamp and Geyskens (2006) and our pretest. Overall, satisfaction is measured by three “strongly agree (5)” to “strongly disagree (1)” Likert scales that are taken from Oliver (1980). The measures of asset specificity are developed by consulting the five-point Likert scales that are developed by Chiou and Droge (2006), Jones *et al.* (2000), and Jap and

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Ganesan (2000). Since asset specificity is context relevant, the measure items of asset specificity are wholly developed by the researchers based on the pretest result. Loyalty intention is assessed by the measures that are proposed by Selin *et al.* (1988), Muncy (1983). These measures are also used by Pritchard *et al.* (1999) and are rated on a five-point scale, from strongly agree to strongly disagree.

#### *Data analysis method*

Following Anderson and Gerbing's (1988) work, the models are tested using a two-stage structural equation model. First, we perform confirmatory factor analysis (CFA) to evaluate construct validity with regard to convergent and discriminant validity. After the validity of each construct is established, the items of each construct are summed and path analysis is performed to test empirically the research hypotheses in the second stage. The path-analytic procedure becomes common in studies with a small sample size (relative to the total variables in the estimated model) that restricts use of the full structural equation model (Li and Calantone, 1998; Chaudhuri and Holbrook, 2001).

### **Results**

#### *Measurement model*

CFAs are used to test the adequacy of the measurement model. We estimate the proposed measurement model using LISREL 8.50. The adequacy of the measurement models is evaluated based on the criteria of overall fit with the data, convergent and discriminant validity, and reliability. The results indicate that a reasonable overall fit exists between the model and the observed data. The overall fit of measurement model are:  $\chi^2_{(2008)} = 4,119.45$ ,  $p = 0.000$ , CFI = 0.97, NFI = 0.94, NNFI = 0.97. NFI, NNFI, and CFI exceed the recommended 0.90 threshold levels (Bollen, 1989; Hoyle and Panter, 1995; Hu and Bentler, 1995).

According to Anderson and Gerbing (1988), convergent validity can be assessed by determining whether each indicator's estimated pattern coefficient on its proposed underlying construct is significant (greater than twice its standard error). An examination of the indicator loadings in the present study indicates that all factor loadings for individual indicators are significant. An inspection of the Cronbach's  $\alpha$  coefficients reveals that, among the eight  $\alpha$  coefficients, all constructs are  $> 0.78$ , except SAI on the online auction seller ( $\alpha = 0.61$ ), which indicates acceptable reliability (Nunnally, 1978). These results provide support for the unidimensionality of the scales.

The most common test of discriminant validity is whether the confidence interval around the correlation between any two latent constructs does not include 1 (Smith and Barclay, 1997). None of the correlations between latent constructs for both CFA models reaches 1. A more conservative test of discriminant validity involves comparison of the values of models that either free or constrain (to a value of 1) the  $\phi$  value and test as to whether the constraint causes a significant decrease in fit (Bagozzi *et al.*, 1992). Again in all cases, the overall fits of the models is significantly diminished by constraining the correlation to 1. Therefore, it is concluded that discriminant validity is adequate for the measurement model in the present study.

Having satisfied the requirement that arises from measurement issues, we subsequently test the structural relationship using path analysis through structural

equation procedure. The constructs in the path model are represented with summated scores that use equally-weighted scales that are developed from the results of CFA.

*Path model and hypothesis testing*

Table II presents an assessment of overall model fit and tests of the research hypotheses. As shown, the results of path model indicate an adequate fit of the model:  $\chi^2 = 340.43$ ,  $df = 62$ ,  $p = 0.00$ ,  $NFI = 0.97$ ,  $NNFI = 0.94$ ,  $CFI = 0.91$ .  $NFI$ ,  $NNFI$ , and  $CFI$  exceed the recommended 0.90 threshold levels (Bollen, 1989; Hoyle and Panter, 1995; Hu and Bentler, 1995). The relationships between the constructs are examined using path coefficients in the model; the coefficients of hypotheses testing are presented in Table II.

*The relationship between e-service quality and overall satisfaction.* For the online auction web site, the e-service quality dimensions of efficiency, privacy, and compensation are found to have significant impact on overall satisfaction with the online auction web site ( $\gamma = 0.44$ ,  $p < 0.01$ ;  $\gamma = 0.23$ ,  $p < 0.01$ ;  $\gamma = 0.18$ ,  $p < 0.01$ , respectively). However, the e-service quality dimensions of system availability and contact do not have significant relationships with overall satisfaction. Therefore, *H1* is partially supported by the data. For the online auction seller, all measured e-service quality dimensions have a significant relationship with overall satisfaction (fulfillment,  $\gamma = 0.43$ ,  $p < 0.01$ ; responsiveness,  $\gamma = 0.18$ ,  $p < 0.01$ ; compensation,  $\gamma = 0.07$ ,  $p < 0.05$ , contact,  $\gamma = 0.12$ ,  $p < 0.01$ , respectively). Therefore, *H2* is supported by the data.

*The relationship between perceived value and overall satisfaction.* Perceived value of purchasing at the online auction web site is found to affect overall satisfaction with the online auction web site significantly ( $\gamma = 0.14$ ,  $p < 0.01$ ). Similarly, perceived value

Path	Path coefficients ( <i>t</i> -value)
<i>H1a</i> : $SQ_{efficiency_{Web}} \rightarrow Sat_{Web}$	0.44 (7.81, $p < 0.01$ )
<i>H1b</i> : $SQ_{system_{Web}} \rightarrow Sat_{Web}$	-0.07 (-1.27, ns)
<i>H1c</i> : $SQ_{privacy_{Web}} \rightarrow Sat_{Web}$	0.23 (4.74, $p < 0.01$ )
<i>H1d</i> : $SQ_{compensation_{Web}} \rightarrow Sat_{Web}$	0.18 (3.96, $p < 0.01$ )
<i>H1e</i> : $SQ_{contact_{Web}} \rightarrow Sat_{Web}$	0.00 (0.01, ns)
<i>H2a</i> : $SQ_{fulfillment_{Seller}} \rightarrow Sat_{Seller}$	0.43 (9.74, $p < 0.01$ )
<i>H2b</i> : $SQ_{responsiveness_{Seller}} \rightarrow Sat_{Seller}$	0.18 (3.27, $p < 0.01$ )
<i>H2c</i> : $SQ_{compensation_{Seller}} \rightarrow Sat_{Seller}$	0.07 (1.67, $p < 0.05$ )
<i>H2d</i> : $SQ_{contact_{Seller}} \rightarrow Sat_{Seller}$	0.12 (3.07, $p < 0.01$ )
<i>H3</i> : $Perceived\ value_{Web} \rightarrow Sat_{Web}$	0.14 (3.08, $p < 0.01$ )
<i>H4</i> : $Perceived\ value_{Seller} \rightarrow Sat_{Seller}$	0.18 (4.77, $p < 0.01$ )
<i>H5</i> : $Sat_{Web} \rightarrow Loyal_{Web}$	0.72 (23.54, $p < 0.01$ )
<i>H6</i> : $Sat_{Seller} \rightarrow Loyal_{Seller}$	0.72 (20.85, $p < 0.01$ )
<i>H7</i> : $Sat_{Web} \rightarrow SAI_{Web}$	0.44 (9.64, $p < 0.01$ )
<i>H8</i> : $Sat_{Seller} \rightarrow SAI_{Seller}$	0.25 (5.02, $p < 0.01$ )
<i>H9</i> : $SAI_{Web} \rightarrow Loyal_{Web}$	0.14 (4.52, $p < 0.01$ )
<i>H10</i> : $SAI_{Seller} \rightarrow Loyal_{Seller}$	0.29 (9.05, $p < 0.01$ )
<i>H11</i> : $Loyal_{Web} \rightarrow Loyal_{Seller}$	-0.10 (-2.84, $p < 0.01$ )
<i>H12</i> : $Loyal_{Seller} \rightarrow Loyal_{Web}$	0.13 (4.47, $p < 0.01$ )

**Table II.**  
Tests of the hypotheses

**Notes:** SQ, service quality; Loyal, loyalty; SAI, specific asset investment; Sat, satisfaction



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of purchasing from the online auction seller is also found to have a significant relationship with the overall satisfaction with the online auction seller ( $\gamma = 0.18$ ,  $p < 0.01$ ). Therefore, *H3* and *H4* are supported by the data.

*The relationship between overall satisfaction, SAI, and loyalty intention.* Overall, satisfaction with the online auction web site is found to have a significant relationship with customer loyalty intention for the online auction web site ( $\gamma = 0.72$ ,  $p < 0.01$ ). Similarly, overall satisfaction with the online auction seller is found to have a significant relationship with the loyalty intention toward the online auction seller ( $\gamma = 0.72$ ,  $p < 0.01$ ). Therefore, *H5* and *H6* are confirmed by the data.

Overall, satisfaction with the online auction web site is also found to have a significant impact on buyer's SAI toward the online auction web site ( $\gamma = 0.44$ ,  $p < 0.01$ ). Likewise, overall satisfaction with the online auction seller is found to have a significant relationship with the buyer's SAI toward the online auction seller ( $\gamma = 0.25$ ,  $p < 0.01$ ). Therefore, *H7* and *H8* are supported by the data.

Finally, the buyer's SAI toward the online auction web site is found to have a significant relationship with his/her loyalty intention toward the online auction web site ( $\gamma = 0.14$ ,  $p < 0.01$ ) and the buyer's SAI toward the online auction seller is found to have a significant relationship with the loyalty intention of the online auction seller ( $\gamma = 0.29$ ,  $p < 0.01$ ). Therefore, *H9* and *H10* are supported by the data.

*The relationship between overall satisfaction, SAI, and loyalty intention.* Consumer loyalty intention toward the online auction web site is found to affect loyalty intention toward the online auction seller negatively and significantly ( $\gamma = -0.10$ ,  $p < 0.01$ ). However, the loyalty intention of the online auction seller is found to affect the loyalty intention of the online auction seller both positively and significantly ( $\gamma = 0.13$ ,  $p < 0.01$ ). Therefore, these results confirm *H11* and *H12*.

### Discussions and implications

The results of this study confirm that e-service quality of an online auction web site with regard to efficiency, privacy, and compensation, has significant impact on overall consumer satisfaction with the online auction web site. The findings suggest that auction web site owners should pay special attention on designing the web site-customer interface and ensuring the security of credit card payments and privacy of shared information for buyers. In addition, companies should pay extra attention on auction web site compensation such as comprehensive buyer protection program and proactive involvement in solving transaction disputes.

This study, however, show that both system and contact of e-service quality of the online auction web site do not influence buyers' overall satisfaction. Consumers may think that these functions are the basic requirements of any auction web site. To them, correct technical functioning of the site and availability of assistance, such as call center or question and answering. A inquiry functions are both fundamental and basic and an auction web site (Yen and Lu, 2008).

In addition, the e-service quality of the online auction seller with regard to fulfillment, responsiveness, compensation, and contact has significant impact on overall satisfaction with the online auction seller. These results suggest that seller should pay attentions to buyer's concern such as order confirmation, fulfillment, quick response, and immediate service when mistake happens, all these are important for soliciting buyers' overall satisfaction. In sum, these results demonstrate that e-service

quality is very important for securing buyer satisfaction; both online auction web sites and online auction sellers must pay attention to various aspects of e-service quality improvement in order to ensure buyer satisfaction.

Accordingly, it is also found that overall satisfaction with the online auction web site and the online auction seller not only affects consumer loyalty intention toward the online auction web site and the online auction seller, but also affects the SAI of buyers on the online auction web site as well as the online auction seller. SAI is found to affect loyalty intention toward both the online auction web site and the online auction seller. These results exhibit the pivotal role of overall satisfaction in forming buyer loyalty intention toward the online auction web site and online auction sellers. Without satisfaction, buyers will not invest specific assets in their relationship with the online auction web site and its online auction seller. Likewise, without satisfaction, buyers will not demonstrate positive loyalty intention toward the online auction web site and the online auction seller. Both online auction web sites and online auction sellers must provide chances for their satisfied buyers to experience more aspects of their services in order to ensure buyer SAI with them.

It is an interesting finding that loyalty intention toward an online auction seller positively affects a buyer's loyalty intention toward the online auction web site, whereas his/her loyalty intention toward the online auction web site negatively affects his/her loyalty intention toward the online auction seller. These results demonstrate that online auction web site managers should not overreact to strong relationships that form between buyers and specific sellers. Rather, a positive relationship between buyers and sellers can induce buyer loyalty intention toward the online auction web site itself because it improves buyer confidence in the online auction web site can attract good sellers. This induces buyers to use the service provided by the online auction web site more often. More importantly, when a buyer is loyal to an online auction web site, she/he will be less likely to stick with a specific seller on the online auction web site. This may provide a partial explanation as to why eBay enjoys an ever-strong competitive advantage in the US market (Aldridge, 2004), while its Asian expansion has been rocky (Vara and Chao, 2006). In most of these Asian markets, eBay is a late entrant and cannot provide adapted e-service quality in the markets at the onset and buyers do not have the motivation to move to eBay with the sellers when they have strong loyalty intention toward their favorite web sites.

The results of this study provide less positive news for online auction sellers. Sellers on an online auction web site should be careful in making online auction web site change decisions. Although a seller can secure buyer loyalty intention by providing strong e-service quality, overall satisfaction and SAI, buyers still may not be enthusiastic about moving with the seller to another auction web site. More importantly, since buyers normally must invest specific asset in their relationship with the online auction web site, such as knowledge of using the online auction web site and the accumulated credit points on the web site, etc. it is more difficult for him/her to switch between different online auction web site for cost-savings or other reasons. The decision to change the online auction web site forum on which to sell products should be done gradually, versus at once.

There are several limitations to this study. The first is in its cross-sectional design. To provide stronger inference, the model that is developed and tested here would benefit from being tested in a longitudinal design. Second, the sample size is relatively

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modest  $n = 221$ . Third, this study focuses solely on buyer perception of the online auction web site and the seller on the web site. Further research can incorporate the perceived relationship between the seller and the online auction web site to explore the interactive relationship that exists between these three parties.

Fourth, it seems for example plausible that customers who experienced problems with a seller may blame the auction web site for it. Further research can explore the relationship between “overall satisfaction with seller” and “overall satisfaction with web site.” Fifth, this study does not cover the possible theoretical link between e-service quality of the online auction web site and e-service quality of the online auction seller. This possible link is not the research focus of our paper, but worth further exploring in future research. They are exogenous variables in our model and their correlations are freed in the model estimation.

Finally, our study examines the antecedents of the online auction web site and the online auction seller in a single country. Although this setting allows for control of extraneous factors, the findings may have limited generalizability to other countries. Past research finds that culture plays a significant role in internet-based e-shopping behaviors (Liao and Cheung, 2001) and thus the strength and relative importance of the proposed constructs in this study may differ by culture. More studies in other societies are necessary in order to confirm the proposed model.

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