

## A PILOT STUDY FOR UNDERSTANDING THE RELATIONSHIPS OF INFORMATION SYSTEM QUALITY, RELATIONSHIP QUALITY AND LOYALTY

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### ABSTRACT

*This study develops a conceptual model for understanding the information system quality of relationship quality and loyalty in the e-service context of shopping, and a conceptual model is also introduced. This study tries to conceptualize a model based on the mediator of relationship quality that is applied to understand loyalty in e-shopping websites. In the proposed model, loyalty is influenced by the relationship quality and information system quality. Additionally, three propositions are developed based the proposed model and literature review. Finally, conclusions, managerial implications, and future research are also provided.*

**Keywords:** *Information System Quality, Relationship Quality, Loyalty*

### 1. INTRODUCTION

At present, the diffusion rate of the Internet usage is more than 25% of global total population (World Telecommunication/ICT Development Report 2010). Up to 2.1 billion worldwide the Internet users in the world are estimated in 2011, and then 44% Internet users are Asian residents (Internet World Stats). With the prevalence of the Internet, it has been swiftly becoming a kind of medium, channel or even a transaction platform that could provide the need of transactions for buyers and sellers.

In the B2C e-commerce perspectives, electronic shopping (e-shopping) is a behavior between the consumer and the enterprises to interact with each other by using computer networks via the Internet or World Wide Web (WWW) (Shih, 2004). E-commerce is also growing very speedy. E-shopping services offered the convenience that places an order immediately for products from the comfortable home (Alok et al., 2004). Therefore, customers are affected to change their purchasing habits from physical stores to electronic storefronts. Since electronic commerce (EC) has become more competitive, so to understand the consumer acceptance of online shopping is very important (Zhou et al., 2007).

Website quality may momentarily impact e-commerce success (Li et al., 2002). DeLone & McLean (D&M, 1992) are the pioneers who first integrated the related study about the effectiveness and the success of information system (IS), and they deduced a conceptual framework of D&M IS success model. Additionally, DeLone & McLean (1992) indicated information quality and system quality are the main factors that influence users' satisfactions. The Microsoft promoter, Bill Gates, stated that customer service would be the advantages of the major value added function in each firms (Gates, 1999). Therefore, service quality is an essential component in information system function. If only the functions provided by information systems draw all attention in examining the effectiveness of information system. In other words, service quality construct is ignored to examine which may lead to the risk of inaccuracy in the assessment (Pitt et al., 1995).

Also, the technical component of the web-based customer support systems is involved information and system quality; however, service quality also involved in the relationship aspect (Negash et al., 2003). The broadly characteristics and definitions of IS quality can be measure from system quality, information quality and service quality (Gorla et al., 2010).

This study is organized as follows. After the introduction section, the next section proposes a review prior literature and discusses the related factors about an individual's loyalty. The research model and propositions are proposed in section 3. Finally, future research works and research limitations are provided to complete this study.

## **2. LITERATURE REVIEW**

### **2.1 Information System Quality**

This study is adopted the D&M updated IS success model (DeLone & McLean, 2003). Also, DeLone & McLean (2003) revised and updated the information systems success model. In addition to information quality and system quality, service quality was also included into the D&M information system success model. Moreover, Bharati & Chandhury (2004) defined the system quality of information systems in the Internet as user-interface-oriented functionality design. In DeLone & McLean's (2003) revised model, the system quality of EC Success Metric contained Adaptability, Availability, Reliability, Response time and Usability. The information quality is the quality of information output that the information system supplies. Also, information quality has been commonly adapted to measure information system performance in information system fields (Lee et al., 2007). In DeLone & McLean's (2003) information systems success model that was revised and updated, the metric of the revised model consisted: completeness, ease of understanding, personalization relevance and security. The service quality means how good services meet users' expectation. Also high-quality services indicated how service providers constantly satisfy users' standards (James & Sammy, 1983). The service quality of ISQ would conduct to IS service reuse. The e-service quality would aim at the goal-oriented e-shopping behavior and would not include the parts of delighted quality (Bauer et al., 2006). Service quality would become an important factor for the success of e-business (Lai, 2006). Also, in predicting behavioral intention, service quality value could be to reuse the service (Kettinger et al., 2009). The e-store would offer a series of service by using Internet, so that it would become more important to assess and to appraise the service quality of e-shop (Ding et al., 2011). DeLone & McLean (2003) revised and updated the information systems success model. In addition to information quality and system quality, service quality was also included into the D&M IS success model. Thus, in DeLone & McLean's (2003) classification, Internet service quality could be classified into three aspects: responsiveness, assurance and empathy.

### **2.2 Relationship Quality**

Hennig-Thurau & Klee (1997) proposed the basis of any business relationship lays mainly service or transaction. Therefore, relationship quality is the same conception of products; namely relationship quality is regarded as meeting customers' needs properly. Moreover, relationship quality has utilized marketing methods to establish nice relationship with customers so that uncertainty of transaction would be decreased (Crosby et al., 1990; Smith, 1998). Crosby et al. (1990) proposed that relationship quality is the total evaluation of the relationship strength in both sides between sellers and buyers, and the evaluation conforms to requirements and expectations which are based on past successful or failed events or experience. Crosby et al. (1990) also proposed a relationship quality model and indicated that significant relationship quality stands for completely trusting salesmen. At present, relationship quality hasn't had a consistent definition (Rauyruen & Miller, 2007; Robie et al., 1998). Therefore, relationship quality was a construct which comprised of some elements, including satisfaction (Crosby et al., 1990; Dwyer et al., 1987), trust (Dwyer et al., 1987; Hennig-Thurau & Klee, 1997), and commitment (Hennig-Thurau & Klee, 1997). Previous research usually took satisfaction, trust and commitment as constructs to examine relationship quality. Scholars have various points of views to the evaluation of relationship quality. However, most scholars maintained "trust" and "satisfaction" could be the dimensions of relationship quality. Scholars in past (e.g. Crosby et al., 1990; Leuthesser, 1997; Smith, 1998; Shamdasani & Balakrishnan, 2000; Lin & Ding, 2009) suggested that relationship quality could consist of trust and satisfaction. Also Liu et al. (2011) proposed that commitment is the concept that belongs to customers' loyalty. This study adopts the definition of relationship quality that relationship quality is a high order construct, and it takes satisfaction and trust as two main constructs, which means satisfaction and trust will be representative constructs for relationship quality. Jones et al. (2000) proposed that the critical point of broadening e-commercial markets is to establish mutual trustworthy relationship. In the research of Hampom-Sosa & Koufaris (2005), if the e-shopping website cannot earn customers' trust after browsing the products on line, the customers will not order anything on the website. Furthermore, the customers possibly make the order on other websites. Ha &

Stoel (2009) also stated that e-shopping quality would decide trust. Therefore, customers' trust to the services provided by the e-commerce website belongs to the second type (Liu et al., 2011). This study defines the trust as that "the customers feel trustworthy and safe to the e-shopping websites." Satisfaction has been a very important conception in marketing records (Oliver, 1997) since Cardozo (1965) first introduced the concept of customers' satisfaction into marketing field. In 1994, Rust and Oliver's research indicated that satisfaction represents customers' trust and the degrees of positive opinions to products or services. Consequently, Satisfaction mainly affects the rates of customers' repurchase (Cronin & Taylor 1992), and it means the result of transaction relationship between buyers and sellers. Due to focusing on online-purchase in this study which will cite the point of view from Crosby et al. (1990) to define satisfaction as "the emotional reaction of the evaluation to interactive experience."

### 2.3 Loyalty

Lee & Cunningham (2001) proposed that customer loyalty is based on customers' past experience and future expectation, which means that customers intentionally and regularly purchase on the current company. According to the definition from Parasuraman et al. (1985), loyalty was that customers want to repurchase in the store, and they are willing to give others positive evaluations. Besides, customer loyalty includes praising the store to others, recommending the store when people query, encouraging friends to shop in the store, buying same products in the top priority store and the frequency of purchasing on the store. In the viewpoint of Jones & Sasser's (1995), customer loyalty was the willingness that customers will buy same products or purchase for the same service again in the future. Jones & Sasser (1995) also divided customer loyalty into two types. One was long-term genuine loyalty that customers have indeed loyalty and won't change to other options, and the other was short-term loyalty, that is, customers will change to other options when they find better products or services. The web service quality and trust would be the most important determinant of the website loyalty (Gummerus et al., 2004). Previous study (e.g. Peppers & Rogers, 1993) indicated that the cost for expanding new customer group is 6~9 times higher than the cost for keeping original customer group. In view of the intense competition of e-commerce, keeping original customer group is necessary. Also, customer loyalty would consist of concept with both behavioral loyalty (purchase intentions) and attitudinal loyalty (Rauyruen & Miller, 2007).

### 3. DEVELOPMENT OF RESEARCH MODEL AND PROPOSITIONS

This study focuses on relationship quality having both main effects on preceding and mediating effects on model paths by comparing three replacement models simultaneously (as shown in Figure 1).

The online shopping store management model is different with the traditional store. Whether online shopping store have achieved success or not? The success important attributes are those how to strengthen the website quality to conform to customer's expectation. By the empirical results of Bharati & Chaudhury (2004), they analyzed the user degree of satisfaction that whether the website does provide the immediate maintenance service and interactive mechanism would be the major factors. Also, McKinney et al. (2002) were viewed as the user appraisal of the website system would decide the website user's satisfaction. Bai et al. (2008) proposed that the impact of website quality on customer satisfaction and purchase intentions from Chinese online visitors.

System quality, information quality, and service quality would measures modulating with satisfaction and trust, which guide to continuance intention in ASPs (Application Service Providers) of IT service using (Kim et al., 2011). Information quality, system quality and service quality would affect online consumers' satisfaction positively and significant (Lin et al., 2011). Information quality and system quality could be regarding as two key points of user satisfaction (Chen, 2010). Service quality positively influences customer satisfaction (Johnson & Fornell, 1991; Kristensen et al., 1999; Kuo et al., 2009). Trust could consider that be a primary predictor of technology usage and fundamental construct in the information systems field, also could understand the user's viewpoint of technology (Li, 2008). Also, the higher quality of legal systems would build up the trust (Wang & Gordon, 2011). Customers would have engendered trust in the online legal service which is positively related to their attitude towards these services (Cho, 2006). Trust would be the factor of technology acceptance that would positively moderate the relationship between e-service and service satisfaction in the airline websites of Taiwan (Lee & Wu, 2011).

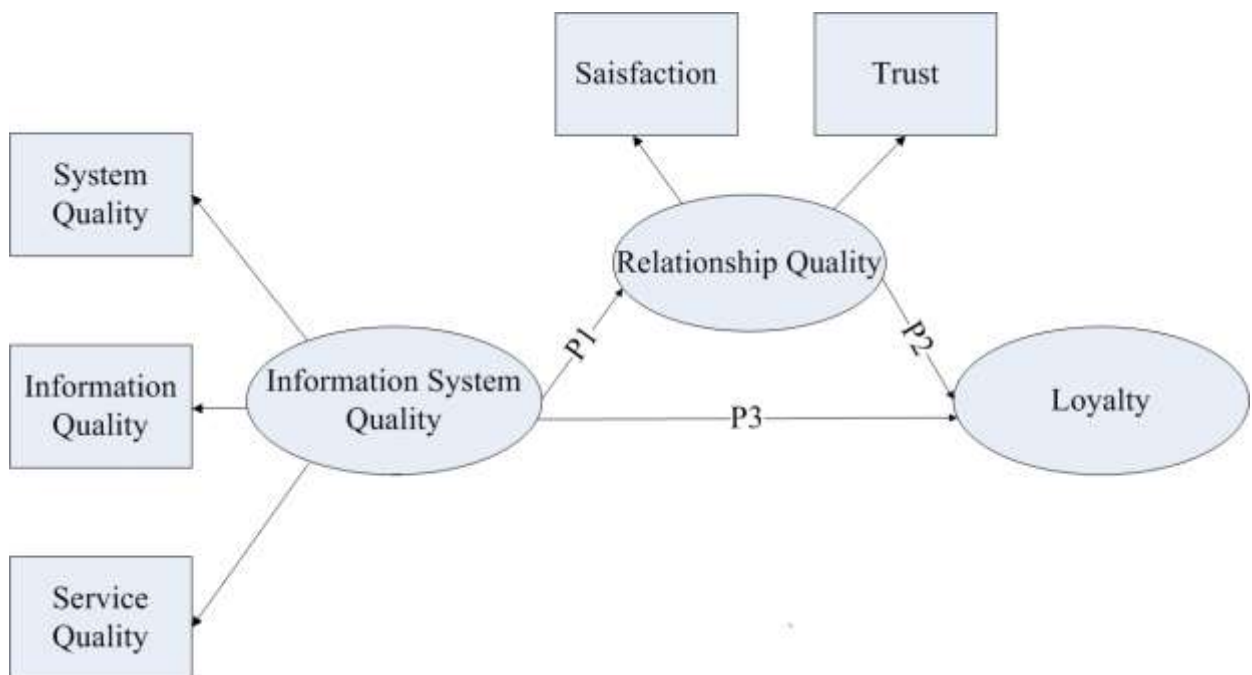
In the previous studies, it would link up relationship quality with customer loyalty (Hennig-Thurau & Klee, 1997; Roberts et al., 2003). Also, the studies have proposed the effects of relationship quality on customer loyalty (Lin & Wang, 2006; Rauyruen & Miller, 2007; Sanchez-Franco et al., 2009; Liu et al., 2011). Relationship quality would be a predictor of B2B customer loyalty (Rauyruen & Miller, 2007).

Flavián et al. (2006) confirmed that the user would increase the trust through more perceived website usability and the more website user's trust would lead to more website loyalty. Ou et al. (2010) showed that website design attributes have apparent effects on making website users' trust and distrust. Therefore, the following hypotheses are proposed. The perceived website usability would be a direct and positive influence on the degree of user loyalty to that same website (Flavián et al., 2006).

Clarke (2001) proposed that satisfaction would come up to loyalty from customers. The prior studies proposed that customer satisfaction has a positively influence customer loyalty (Fornell, 1992; Dick & Basu, 1994; Choi et al., 2008; Deng et al., 2010). Oliver (1999) pointed out that customer satisfaction and loyalty has a positive influence. The satisfaction of Internet user also has positively effect on loyalty (Fassnacht & Köse, 2007).

Lee et al. (2000) proposed that loyalty would directly depend on the degree of trust. From earlier studies found that trust would positively influence customer loyalty (Chiou, 2004; Lin & Ding., 2006; Liu et al., 2011). The preceding status of loyalty is customer trust (Reichheld & Schefer, 2000). Also, it would result from the loyalty when the risk is more significant, but the customer is more trust (Sanchez-Franco et al., 2009). Moreover, Deng et al. (2010) demonstrated that trust would conduct to customer loyalty in mobile instant message from Chinese users.

If the consumers feel satisfied so that the degree of honesty also would be perceive. Therefore, the satisfaction would be an implement to enhance trust (Flavián et al., 2006). Also, Flavián et al. (2006) stated that the more website user satisfaction would have a directly and positively influence on the level of trust shown in that same website. Ribbink et al. (2004) also proposed that e-satisfaction directly and positively influences e-trust.



**Figure 1- Research Model**

For previous studying of comprehensive, this study tests the following propositions:

P1 : On E-shopping website, information system quality is positively associated with the relationship quality.

P2 : On E-shopping website, relationship quality is positively associated with the loyalty.

P3 : On E-shopping website, information system quality is positively associated with the loyalty.

#### 4. FUTURE RESEARCH DIRECTIONS AND LIMITATIONS

In this study, we will analyze data include descriptive statistics, reliability analysis, validity analysis, goodness-of-fit, hypothesis testing and mediation effects testing. Also, the Structural Equation Model (SEM) test is adopted by Anderson & Gerbing (1988) with two two-step procedures. The first step would perform a Confirmatory Factor Analysis (CFA), all of the constructs and indicators were described and composed as a measurement model in which all constructs were allowed to correlate with each other. The second step

analyzed the structural model. Besides, construct validity of the research tool was using SPSS 12 and AMOS 6 for Windows. After verifying the hypotheses by statistical analyzing, the result would be fully discussed later chapters and sections.

There are three conceptual models will demonstrate from previous studies. Those three models are compared to assess the effects for e-shopping website by different approaches respectively. In model 1, information system quality is as a single construct comprising system quality, information quality and service quality. Besides, information system quality influences loyalty directly and indirectly through the mediation of relationship quality as a single construct. In model 2, information system quality is as a single construct comprising system quality, information quality and service quality. Besides, information system quality influences loyalty directly and indirectly through the mediation of relationship quality as a second-order construct comprising satisfaction and trust. In model 3, information system quality is as a single construct comprising system quality, information quality and service quality. Besides, information system quality influences loyalty directly and indirectly through the satisfaction and trust as two different constructs.

The future works of this study will establish by means of collecting and probing into related papers in order to set up research hypotheses. Also, the questionnaire will develop to measure the relevant construct. Each item was measured on a seven-point Likert scale (Likert, 1932), with answers ranging from 1 for “strongly disagree” to 7 for “strongly agree”. Then, questionnaire sampling and evidence collecting are developed to be the basis of verification for the research hypotheses. Finally, the focus of this study is regarded as an exploratory offering the influence of information system quality on users’ evaluations on e-shopping service providers as well as their loyalty. Researchers can adopt or modify the model of this study in planning research and studies in the future.

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