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# **Linking Perceived Electronic Service Quality and Service Loyalty on the Dimensional Level: An Aspect of Multi-channel Services**

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## **Abstract**

*As the online buyer's shopping patterns evolve using multiple channels in receiving and consuming products and services, electronic retailers are offering value-added services that facilitate and support the online shopping transaction and experience. Several e-retailers adopted the strategy of logistical integration to offer their shoppers the ability to access physical outlets/touch-points to pickup and return their online purchase. Such deployment of physical outlets/touch-points to facilitate and support online transaction has been widely recognized as an important feature. Yet, it is not known how online shoppers perceive e-service quality in the presence of logistics integration services. More importantly, electronic markets are very competitive environments where the competitor is just a click away. Therefore, understanding the service loyalty in the context of virtual stores is essential for e-retailers' survival. Several studies have found that superior e-service quality improves loyalty. However, most of these studies measured e-service quality and customer loyalty unidimensionally. The primary objective of this research is three-fold: (i) identifying the key dimensions of e-service quality; (ii) identifying the dimensions of e-service loyalty; (iii) examining the effects of the identified dimensions of e-service quality on the various types of customer loyalty. An empirical study resulted in developing three scales; the E-service-Qual scale for measuring e-service quality, the Int-Logis-Qual scale for measuring logistical integration quality and the E-loyalty scale for measuring customer loyalty. Our investigation revealed that assurance and reliability are the most important factors influencing both 'preference loyalty' and 'loyalty under increased pricing'. Another striking finding is that responsiveness is the only factor that significantly affects 'complaining behavior'. More importantly, we have found that facilitating online shopping by offering offline-pickup and offline-returns services improve securing the loyalty of existing customers. Both offline-returns and offline-pickup influence significantly 'preference loyalty', while offline-returns quality affects 'loyalty under increased pricing' indirectly mediated by the perception of assurance.*

Keywords: E-commerce, Loyalty, service quality, multi-channel, scale development, structural analysis

## Introduction

Electronic retailers with the most experience realized that the key determinant of success is delivering superior and differentiated services attuned to ever-changing customer needs and preferences. With the rapid growth of e-commerce, it has become important to be able to monitor and improve the quality of electronic service (e-service). The concept of *service quality* has been described as an abstract and elusive construct that is difficult to understand and measure (Cronion & Taylor, 1992). A combination of theoretical and empirical research resulted in developing the SERVQUAL model for measuring service quality. The SERVQUAL model is composed of five dimensions: tangibles (appearance of physical facilities, equipment, personnel and communication materials), reliability (ability to perform the promised service dependably and accurately), responsiveness (willingness to help customers and provide prompt services), assurance (knowledge and courtesy of employees and their ability to convey trust and confidence) and empathy (the caring and individualized attention provided to the customers) (Parasuraman *et al.* 1988). The SERVQUAL model has demonstrated a wide acceptance as the service quality measurement tool across the spectrum of different industries (Caruana *et al.*, 2000). Service quality in traditional settings (i.e., physical facilities like stores and restaurants) has received extensive research attention that provided a strong basis for defining and measuring service quality (Parasuraman *et al.*, 2005). However, traditional service quality scales cannot be simply adapted to measure e-service quality (Parasuraman *et al.*, 2005). A noteworthy feature of e-service quality is that its evaluation process is a distinct one and the profile of the online shopper is different from the one of the traditional customer (Parasuraman & Grewel, 2000; Parasuraman *et al.*, 2005). Therefore, more attention is needed to understand how to measure e-service quality.

According to Zeithaml *et al.* (2000), e-service quality is the extent the web facilitates effective shopping, purchasing and delivery of products and services. Therefore, e-retailers need to offer superior services that support the online shopping transaction. An emerging value-added service has been adopted increasingly by multi-channel retailers as well as Internet-based players is offering the online shopper the accessibility to a physical outlet/touch-point to pickup and returns online purchases. Such services are offered as retailers adopt the logistical integration strategy (Lee & Whang, 2001; Saeed *et al.* 2003; Steinfield *et al.*, 2005). Although offering logistical integration to online shoppers solves the *last mile* problem and improves order fulfillment (Lee & Whang, 2001), delivering e-services in such multi-channel settings adds more complexities to e-service quality measurement (Sousa & Voss, 2004). Even more importantly, it is not known how online buyers perceive e-service quality in presence of logistical integration services (Lee & Whang, 2001).

Service quality research indicates that studying e-service quality is more valuable when it is associated with variables such as perceived control, perceived risk and satisfaction (Lee & Lin, 2005; Zeithaml *et al.*, 2000). Since e-markets are very competitive environments where building 'loyalty models' is a dilemma, current research attempts to understand e-service loyalty through the lens of e-service quality. The web represents a fundamental trade and communication channel to electronic retailers (e-retailers). On the other hand, it opens up the industry to ever-growing competition and increases the difficulty of retaining customers (Smith, 2002). Therefore, winning customer loyalty is a priority for e-retailers' survival (Reichheld & Schefter, 2000). As a result, e-retailers have aggressively pursued different loyalty "building strategies". Even though no single loyalty strategy was identified to build the loyalty model, one strategy has increasingly gained strong attention to retain customers. This is the concept of service quality (Smith, 2002; Zeithaml *et al.*, 1996). In contrast to the considerable body of research on the service quality-service loyalty relationship relevant to physical stores, it remains unknown how e-service quality-service loyalty relationship is transferred in e-markets (Lauren & Lin, 2003; Zhang & Prybutok, 2005).

In light of the above introduction on e-service quality measurement and its relationship to e-service loyalty, the present study attempts to answer the following questions.

- What are the dimensions of e-service quality considering logistical integration services?
- What are the dimensions of e-service loyalty?
- How the multiple dimensions of e-service quality affects the various types of e-service loyalty?

## Literature review

One of the most important instruments for measuring traditional service quality is the SERVQUAL model (Parasuraman *et al.*, 1988; 1985). This model measures service quality on five dimensions (tangibles, reliability, responsiveness, assurance and empathy) (Parasuraman *et al.*, 1988). Few researchers, however, applied the SERVQUAL model to measure e-service.

For example, Barnes and Vidgen (2002) have applied the SERVQUAL in their development of the WebQual scale to measure e-service quality on five dimensions: usability, design, information, trust and empathy. Another study was conducted by Li et al. (2002) who applied the SERVQUAL to measure web-based service quality on six dimensions: responsiveness, competence, quality of information, empathy, web assistance and callback systems.

As research has shown that studying service quality is more useful when it is associated with other variables, this paper studies e-service loyalty (e-loyalty) and its link to e-service quality. According to Oliver (1999), service loyalty is a deeply held commitment to re-buy or repatronize a preferred service consistently in the future thereby causing repetitive purchasing, despite situational influence of marketing efforts having the potential to cause switching behavior. In contrast to the extensive research on traditional service loyalty, a number of issues on e-service loyalty research limit our understanding of e-loyalty. First, some studies focused on e-loyalty as a unidimensional construct (e.g., Van Riel et al., 2001). Second, some aspects of service loyalty such as “loyalty under increased pricing “ and “complaining behavior” have been left out of research (Bloemer et al., 1999). In light of the identified gaps in e-service quality and e-service loyalty research, a conceptual model is developed in the following section.

## **Theoretical foundation and research model**

This research integrates theories of the Technology Acceptance Model (TAM) (Davis, 1989), the SERVQUAL model (Parasuraman et al., 1988), and the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975). In addition, as the current research focuses on value-added services that facilitate the online shopping transaction (i.e., logistical integration services), new elements needed to be considered. The construct of ‘facilitating conditions’ is integrated onto our theoretical model. The ‘facilitating conditions’ construct was first mentioned in the Model of PC Utilization (MPCU) (Thompson et al., 1991), developed to predict individuals’ PC utilization. The same construct was also used in the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Venkatesh et al. (2003) define the construct of ‘facilitating conditions’ as objective factors in the environment that make an act easy to accomplish. Accordingly, we propose that:

*H1: E-service quality is a multi-dimensional construct that is composed of website design, information quality, website usability, reliability, responsiveness, assurance, personalization and logistical integration.*

Although several researchers tested the dimensionality of loyalty and its relationship with service quality in physical facilities (e.g., Bloemer et al., 1999; Zeithaml et al., 1996), no study addressed this issue in the virtual stores. This study adopts Zeithaml et al.’s (1996) framework to identify the dimensions of e-service loyalty as follows:

*H2: E-service loyalty is multi-dimensional construct composed of word-of-mouth communication, purchase intentions, price tolerance and complaining behavior.*

Consistent with previous research on service quality-service loyalty relationship in the traditional stores, we suggest the following hypothesis:

*H3: There is a significant relationship between dimensions of e-service equality and e-service loyalty.*

## **Research methodology**

This research follows the framework for theoretically developing unidimensional measures of complex research variables suggested by Churchill (1979). Two datasets are used to develop scales of e-service quality and e-loyalty. The first dataset is used to conduct reliability analysis and Exploratory Factor Analysis (EFA) to purify items. The second dataset is used to confirm the dimensionality of the main constructs of the study (i.e., e-service quality and e-service loyalty) and to test research hypotheses by conducting Structural Equation Modeling (SEM) following the two-step procedure recommended of Anderson and Gerbing (1988). Validated and reliable sub-scales were used from previous studies. Nonexistent constructs (i.e., logistical integration construct) were operationalized using focus group research.

## Data collection and statistical analysis

Conducting reliability analysis and EFA using the first dataset (N=240) resulted in developing three scales. The first scale measures e-service quality on six dimensions: website usability, information quality, reliability, responsiveness, assurance and personalization. The second scale is for measuring logistical integration on two dimensions: offline-pickup and offline-returns. The third scale is developed for measuring e-loyalty on three dimensions: preference loyalty, price tolerance and complaining behavior. Next, SEM was conducted using another independent dataset (N = 365). The two-step procedure of SEM that is recommended by Anderson and Gerbing (1988) of performing confirmatory factor analysis and structural modeling revealed that the dimensions of reliability and assurance are the most important factors that affect “preference loyalty” and “loyalty under increased pricing”, while responsiveness is the only factor that affects “complaining behavior”. More interestingly, the dimension of personalization was not found to affect significantly any of the loyalty dimensions (see figure 1).

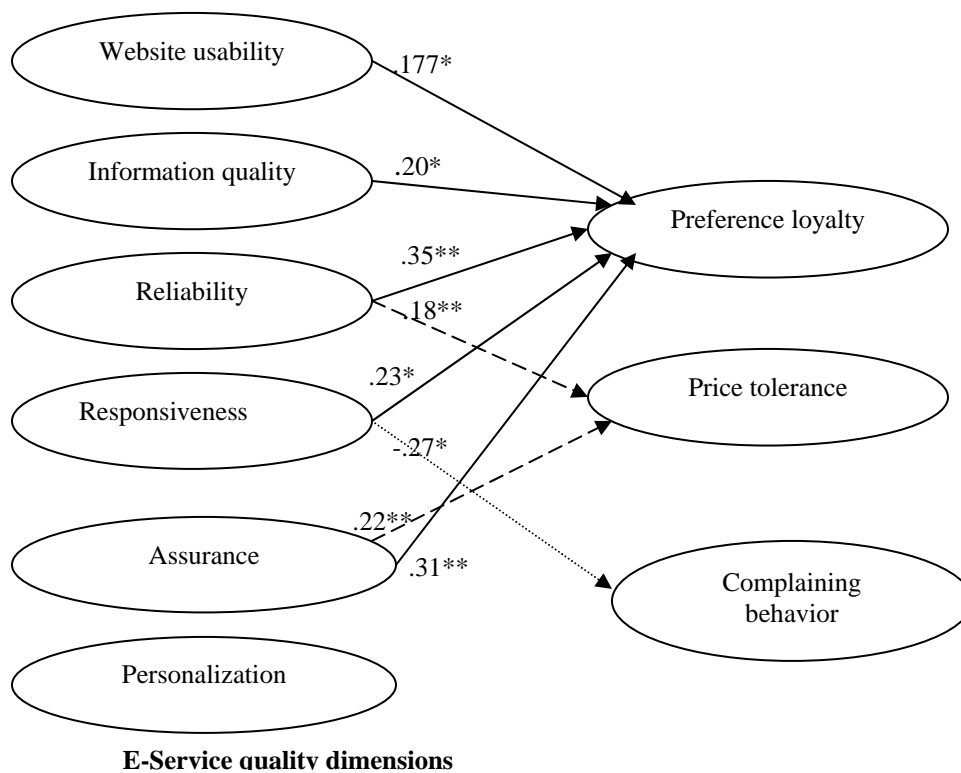


Figure 1. E-service quality-service loyalty relationship

\*Based on t-tests for null hypothesis, *t-values* are significant at  $p >: 0.05$   
 \*\**t-values* are significant at  $p > 0.01$

A replicated analysis was conducted to test the relationship between dimensions of Int-Logis-Qual and dimensions of E-Loyalty. First, a saturated model (SMlog-loy) was build that incorporate all possible relations between the dimensions of Int-Logis-Qual dimensions (offline-pickup and offline-returns) and dimensions of e-loyalty (preference loyalty, price tolerance and complaining behavior). By using the modification indices of Lagrange multiplier and stepwise Wald test, the saturated model was modified resulting in a model that fits that data well. The resulting model indicates that both of offline-pickup and offline-returns affect ‘preference loyalty’.

## Implications

The current research offers managers an accurate diagnostic instrument to measure e-service quality, logistical integration and to manage e-loyalty. One potential application for E-Service-Qual is its use as a diagnostic instrument to measure e-service quality along the identified six dimensions by calculating the average score of items from the dimension. Moreover, our research suggest that managers of online firms need to develop marketing strategies that increase the perception of reliability and assurance to increase customer retention and weaken price sensitivity. Research work and results identified a striking result is that responsiveness dimension is the only dimension that influences complaining behavior and negative word-of-mouth. As a result, online managers may diminish customers' complaining behavior by enhancing the quality of customer service and web responsiveness.

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