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The relationship between perceived e-service quality and brand equity: A simultaneous equations system approach

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ABSTRACT

Using the data collected from the online banking users in Taiwan, we build a hierarchical model of e-banking service quality and investigate the relationships among e-service quality, trust, satisfaction, loyalty, and brand equity. Moreover, the simultaneous equations system approach is also applied to transfer the traditional satisfaction-loyalty path into the simultaneous relationships between trust and loyalty, and between satisfaction and loyalty. As the structural form coefficients demonstrate the direct relations between our research constructs, the reduced form estimates further disclose the total impacts of the quality of e-banking service on trust, satisfaction, loyalty, and brand equity, respectively. The results indicate that the perceived quality formed through interaction with an online banking service positively affects customer trust and satisfaction, which in turn influence loyalty and brand equity. The significant simultaneous relationships between trust and loyalty, and between satisfaction and loyalty, are confirmed by our data, implying that these relationships must be determined simultaneously, rather than sequentially.

1. Introduction

Electronic banking (e-banking) has changed customer banking behaviors and gradually become an indispensable banking tool. In 2012, one out of four global internet users assessed online banking websites and over 45 percent of the internet audience in North America had online banking service experiences; meanwhile, 5.1% e-banking penetration growth rate in Asia Pacific area also indicates that more and more Asian customers begin to learn and adopt e-banking services (comScore, 2012).

When customers produce services (e.g., check account balance, transfer money, and pay the bills) with self-service technologies (SSTs), their lack of direct interactions with employees during the e-service process would hinder companies from gaining control over service experiences (Sandström, Edvardsson, Kritensson, & Magnusson, 2008). Therefore, e-service providers should pay more attentions to the interactions between SSTs and their users in order to design and offer better services (Venkatesh, Chan, & Thong, 2012).

Served as the determinant of customer experience, service quality plays an essential role in achieving important outcome including trust, satisfaction and loyalty (Ladhari, 2010; Zhao, Lu, Zhang, & Chau, 2012). To design and deliver suitable quality encounters and outcomes, e-service providers must understand how their decisions affect each "moment of truth" (Sampson & Menor, 2011). However, many technology-based self-services are designed without considering quality defined by user and cause customer dissatisfaction (Venkatesh et al., 2012). Besides, sufficient attention has not been paid to study and examine the formative nature of e-service quality. As suggested in previous studies (Collier & Bienstock, 2006; Ladhari, 2010; Parasuraman, Valarie, & Malhotra, 2005), e-service quality should be considered as customer's formed judgment on e-service offerings and be measured by formative rather than reflective indicators.

On the other hand, when e-service providers seek to differentiate themselves from competitors by enhancing brand values, the brand equity, which has gained significant attention in operations management and information systems studies (e.g., Davis, Golicic, & Marquardt, 2008; Lieb, 2008; Golicic, Fugate, & Davis, 2012; Nah, Eschenbrenner, & DeWester, 2011; Lin & Kao, 2014), has not been discussed and explored thoroughly in e-service. Besides, from the human–computer interaction perspectives, there is also a lack of empirical studies, testing whether hedonic or positive online experiences can lead to brand equity (Nah et al., 2011).

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Even though models of the satisfaction-loyalty chain have been proposed in previous studies, this traditional framework still cannot explain why many satisfied customers eventually switch to competitors (satisfied-defection) and why temporary dissatisfaction may not affect loyalty (dissatisfaction-loyalty) (Buell, Campbell, & Frei, 2010; Chiou & Droge, 2006). This implies that a simple direct causal or path relationship between satisfaction and loyalty may not be sufficient and that important elements might be omitted in this simple relationship. As online banking transactions contain many uncertainties and risks for the customers, trust in the e-banking service has become essential and indispensable. Therefore, we incorporate trust into the traditional chain of satisfaction-loyalty to investigate how this factor affects both satisfaction and loyalty.

In addition, the relationships among trust, satisfaction, and loyalty are always considered sequentially in previous studies; however, this sequential or path scenario could not be true and appropriate (Bennett & Rundle-Thiele, 2004). Instead, according to Lin and Shao (2000), the simultaneity or interdependence methodology may be superior since it allows us to investigate the proposition that the relationships among trust, satisfaction, and, loyalty are determined simultaneously. As such, departing from the traditional path analysis, this research aims to develop a simultaneous equations model to investigate the major effects brought about by trust, satisfaction, and loyalty on brand equity.

The remainder of the paper is organized as follows. Section 2 discusses the theoretical background and establishes the hypotheses, while Section 3 develops the simultaneous equations system model. Section 4 describes the data and analyzes the results. Finally, Section 5 discusses managerial implications and concludes the paper with some remarks.

2. Theoretical background and research hypotheses

2.1. Conceptual framework

The cognition–affect–behavior (C–A–B) model provides the clue of the relationships between our research constructs (Buil, Chernatony, & Martínez, 2013; Chang & Chen, 2009; Chiou & Droge, 2006): customers' awareness of e-service quality leads to their attitudes which in turn influence loyalty and brand equity. Thus, customers' judgments of e-service quality (i.e., cognition) formed through interaction with an online banking website positively impact customer trust and satisfaction (i.e., the affect) and, hence, loyalty (i.e., the affect) and brand equity (i.e., behavioral intention). More importantly, the simultaneous relationships between trust and loyalty, and between satisfaction and loyalty must be considered because it is not appropriate to assume particular causal relationships for these attitudinal variables (Bennett & Rundle-Thiele, 2004; Lin & Shao, 2000). Six major constructs and their corresponding interrelationships are depicted in Fig. 1 as our research framework.

2.2. Quality of e-services

When customers interact solely with user interfaces, quality is regarded as the most important determinant of long-term success in e-service (Zeithaml, Parasuraman, & Malhotra, 2002) because frequent use of e-services could cause the novelty of such offerings to fade away and make customers reluctant to accept inferior service quality (Fassnacht & Koese, 2006). Meanwhile, the paradigm shift from goods-centered to service-dominant logic also exposes the need for companies to deliver high levels of e-service quality in order to achieve superior performance (Klaus & Maklan, 2012). Thereby, consistent delivery of high e-service quality has become a primary source of competitive advantage (Fassnacht & Koese, 2006).

Nonetheless, research in the quality of e-service is still at the initial stage (Ladhari, 2010). According to Rabinovich, Maltz, and Sinha (2008) and Ladhari (2010)'s reviews, most e-service quality dimensions are conceptualized and developed from the perspective of delivery quality (e.g., efficiency, functional quality) and outcome quality (e.g., fulfillment). However, compared to process-oriented delivery quality, outcome quality has not obtained significant attention in this area (Collier & Bienstock, 2006; Fassnacht & Koese, 2006; Ladhari, 2010). Besides, the earlier works on defining e-service quality, including WEBQUAL (Lociacono, Watson, & Goodhue, 2007), SITEQUAL (Yoo & Donthu, 2001a), eTailQ (Wolfinbarger & Gilly, 2003), e-SERVQUAL (Zeithaml et al., 2002), and E-S-QUAL and E-RecS-QUAL (Parasuraman et al., 2005) have been criticized for not considering the formative nature of e-service quality as these scales are made up of reflective indictors rather than formed attributes (Collier & Bienstock, 2006; Ladhari, 2010). Collier and Bienstock (2006) further point out that using reflective indicators might also cause possible misspecification problems. Therefore, as suggested by Parasuraman et al. (2005), Collier and Bienstock (2006) and Ladhari (2010), it is more suitable to treat the first-order dimensions as formative indicators of the second-order latent constructs. Furthermore, among the e-service quality studies, only Collier and Bienstock (2006) (which investigate e-retailing industry), Fassnacht and Koese (2006) (which discuss homepage services, sports coverage service, and online shopping), and Lu, Zhang, and Wang (2009) (which study mobile service) have developed the hierarchical models to conceptualize quality of e-service. As a result, to fill these research gaps in previous studies, we consider formative constructs, including *delivery quality* and *outcome quality* and revise and distinguish dimensions in these studies to conform to reality in online banking.

2.2.1. Delivery quality

Delivery quality refers to the customers' interaction stage during e-service usage (Collier & Bienstock, 2006; Fassnacht & Koese,

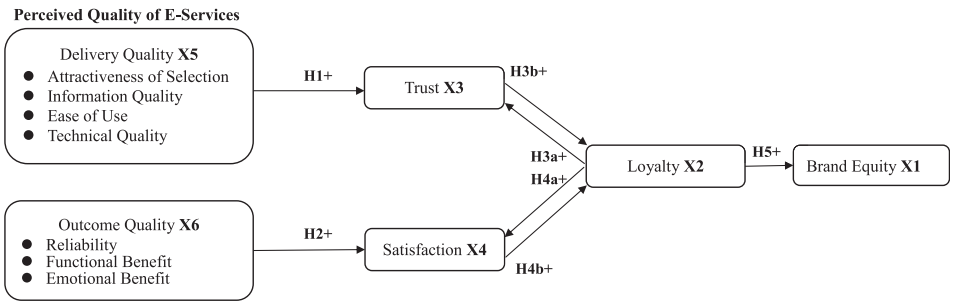

Fig. 1. Conceptual framework.