

Measuring Quality of Electronic Service (E- Service) In Banking

Saba M. Hussain

Abstract

This research to evaluate e- service quality from the customers, perspective, and to examine the effect of e-service quality dimensions on customer's perception of banking e- service quality. Data was collected via self-administered questionnaire from random samples drawn from the population of customers using e-banking service. The constructs in this search were developed by using measurement scales adopted from prior studies. The instrument was evaluated for reliability and validity. The results in this search indicate that Reliability; Responsiveness; Ease of use; Personalization; Security; and Website design have influence on customer's perception of e- service quality.

Keywords:- quality, e-service, banking, costumers.

I. Introduction

In Recent Years, With The Rapid Development Of Information, Communication Technology, And The Globalization Of The Market, Internet And World Wide Web (WWW) Have Become Important Tools In Business, Distance And Time Barriers Are Vanishing And The World Is Becoming An Integrated Community Of Buyers And Sellers That Interact Via The Internet. Internet Has Significantly Revolutionized Banking Industry In The Last Decade. Products And Services Are Radically Shifted To Digital Form And Delivered Through The Internet. Additionally, The Internet Offers An Interactive Function With Its Customers (Santos 2003) And Enables Electronic Service (E-Service) Move To The Forefront Of Technology Priorities (Voss 2003). Most Banks In The Developed World And Some In The Developing World Are Now Offering Internet Banking Services With Various Levels Of Sophistication (Bawumia, 2007). For Example, While Some Banks Have Adopted Internet Banking For Communicating To Customer On Regarding Bank Statements, Other Banks Use Internet Banking Services To Allow Customers To Access Their Bank Accounts And Perform Other Banking Transactions (Bawumia, 2007). Electronic Service Quality (E-SQ) Is A New Developing Area Of Research, Which Has Strategic Importance For Businesses Striving To Address Customers In The Electronic Marketplace. (Parasuraman And Zinkhan 2002) Maintain That Electronic Services Contribute Two Key Advantages: Information Efficiency And Transaction Efficiency. Electronic Service Quality Is A Basic Requirement For The Good Performance Of Electronic Channels (José & Ainhize, 2009).

(Yang (2001) And Zeithaml (2002)) Believe That E-Service Experience Greatly Affects The Establishment Of Trust And Relation With

Customers, And Enterprises Must Pay Attention In This Regard. (Oliveira Et Al2002) Believe That E-Service Quality Can Increase The Competition of the Company's Requirement Fulfillment. A Higher Level Of E-SQ Contributes To Achieving The Main Business Goals (Zeithaml Et Al., 2000, 2002a). (Oliveria Et Al2002) State Also That Electronic Service (E-Service) Might Be The Key To Long-Term Advantages In The Digital Times, And Eservice Quality Is Becoming Even More Critical For Companies To Retain And Attract Customers In The Digital Age And Can Increase The Competition Of The Company's Requirement Fulfillment (Oliveria Et Al. 2002). Service Quality Delivery Through Websites Is An Essential Strategy To Success, Possibly More Important Than Low Price And Web Presence (Zeithaml, Parasuraman, & Malhotra, 2002). (Santos 2003) Believes That The E-Service Features Mutual Exchange Of Information, Which Can Bring Customers Extraordinary Experiences. Importantly, Effective Management Of E-Service Encounters (Cho And Menor, 2010) To Deliver And Maintain High Quality Is Crucial For Web Sites In Order To Increase Customer Satisfaction And Customer Loyalty (Kim Et Al., 2009).

Extensive Research On Traditional SQ Has Been Conducted During The Past 20 Years (See Parasuraman And Zeithaml 2002 For A Review). In Contrast, Only A Limited Number Of Scholarly Articles Deal Directly With How Customers Assess E-SQ (Parasuraman Et.Al. 2005), And What Are Appropriate Dimensions Of The Quality Of E-Service Delivery (Jamie & Aron, 2011). Supported By The Above Rationale. This Paper Addresses The E-Service Quality Issue In The Electronic Marketplace. The Purpose Of The Paper Is To Investigate E-Service Quality Dimensions From Customer's Perspectives. The Paper Explores E-

Service Quality Dimensions Based On A Review Of The Development Of E-Service Quality Dimension. It Proposes A Six-Dimension Scale For Measuring E-Service Quality: Reliability; Responsiveness; Ease Of Use; Personalization; Security; And Website Design From The Customer's Perspective.

II. Literature Review

2.1 E-Service Quality

"E-Service" Has Recently Become A Popular Research Topic, With The Growth Of The E-Commerce, And A Number Of Published Studies Have Offered A Variety Of Conceptual Definitions (Sylvie& Ina, 2010). Electronic Service Or E-Service As It Has Become More Commonly Known Is Now Recognized As One Of The Key Determinants For Successful E-Business (Jamie & Aron, 2010). With The Increase Of E-Service Adoption In Business Field, The Importance Of Measuring And Monitoring E-Service Quality In The Virtual World Has Been Recognized. Over The Past Two Decades, There Has Been Significant Advancement In Service Quality Theory (See Brady And Cronin, 2001; Dabholkar Et Al., 1996; Dabholkar Et Al., 2000; Dagger Et Al., 2007; Rust And Oliver, 1994).

Rowley (2006) Points Out That The Existing Literature On E-Service Quality Mainly Study The Dimension And Measuring Method Of E-Service Quality, And That There Is No Completely Recognized Definition Of E-Service. E-Service Quality Can Be Described As Overall Customer Evaluations And Judgments Regarding The Excellence And The Quality Of E-Service Delivery In The Virtual Marketplace (Santos, 2003). According To (Parasuraman Et. Al. 2005) E-SQ Is Defined broadly To Encompass All Phases Of A Customer's Interactions with A Web Site: The Extent To Which A Web Site Facilitates efficient And Effective Shopping, Purchasing, And Delivery. (Ruyter Et Al. 2001, P. 2) Describe E-Service As "Content-Centred And Internet-Based Customer Service, Driven By The Customer . . . With The Goal Of Strengthening Customer-Service Provider Relationships". (Collier And Bienstock 2006) Defined E-SQ As "Customer's Perceptions Of The Outcome Of The Service Along With Recovery Perceptions If A Problem Should Occur". (Rowley 2006) Gives A Definition In Conclusion Of Many Scholars' Opinions, "E-Service, Based On Information Technology, Includes The Information Provision And System Support, The Logistic Transportation Of Service And The Trace And Exchange Of Information".

2.2 Measuring E-Service Quality

The Conceptualization And Development Of E-SQ Measurements Is Needed Because It Will Help

To Control And Improve The Performance Of Online Companies (Yang Et Al., 2003). Most Studies Of The Concept And Measurement Of Electronic Service (E-SQ) Have Identified The Dimensions Of The Construct From Either The Customer's Perspective Or The Provider's Perspective (Heim And Field, 2007). A Review Of Existing Literature On Eservice Quality Shows More Different Dimensions In Eservice Quality That Are Useful For Different Research Contexts (Madu And Madu 2002, Li And Suomi, 2009; Santos 2003; Field Et Al. 2004; Ho And Lin, 2010; Kim And Stoel 2004; Yang And Fang 2004; Long And McMellon 2004; Gounaris Et Al. 2005; Lee And Lin 2005; Kim Et Al. 2006;)

The Previous Efforts To Measure E-Service Quality Also Display Different Approaches (Bauer Et Al., 2006; Loiacono Et Al., 2000; Wolfenbarger And Gilly, 2003; Yoo And Donthu, 2001; Zeithaml Et Al., 2002). (Rowley 2006) Points Out That The Existing Literature On E-Service Quality Mainly Study The Dimension And Measuring Method Of E-Service Quality, Customers' Online Experience.

On The Basis Of A Comprehensive Review And Synthesis Of The Extant Literature On E-SQ, (Zeithaml, Parasuraman, And Malhotra 2002) Detailed Five Broad Sets Of Criteria As Relevant To E-SQ Perceptions: (A) Information Availability And Content, (B) Ease Of Use Or Usability, (C) Privacy/Security, (D) Graphic Style, And (E) Reliability/Fulfillment.

(Santos 2003) In This Regard Discussed E-Service Quality Dimensions As Consisting Of, Ease Of Use, Web-Appearance, Linkage, Structure And Layout, Content As The Incubative Dimensions; Reliability, Efficiency, Support, Communication, Security, And Incentive As Active Dimensions. (Madu And Madu 2002) Proposed The Following 15 Dimensions Of Online Service Quality Based On Literature Review: Performance, Features, Structure, Aesthetics, Reliability, Storage Capacity, Serviceability, Security And System Integrity, Trust, Responsiveness, Product/Service Differentiation And Customization, Web Store Policies, Reputation, Assurance, And Empathy.

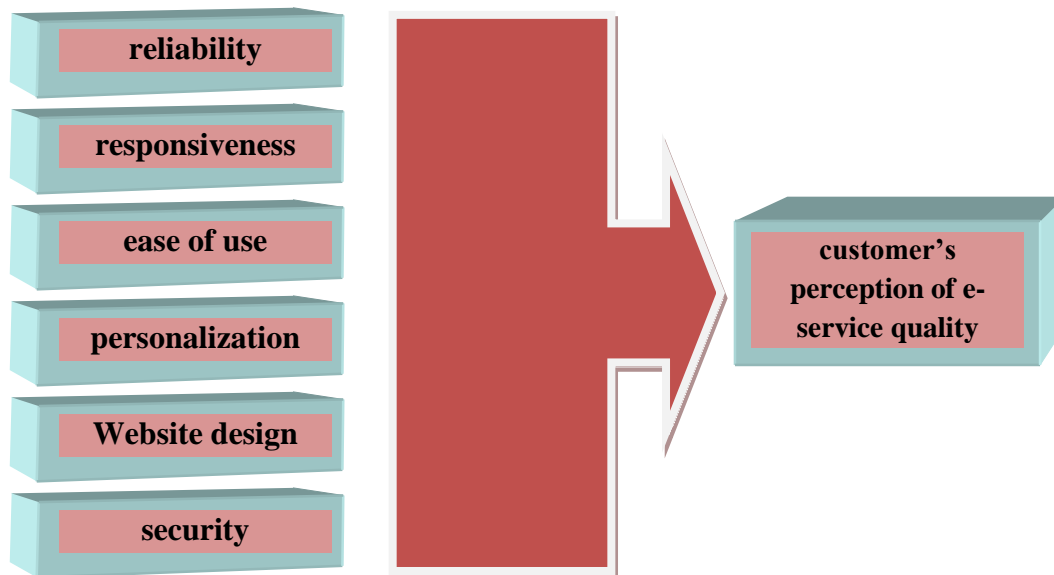
(Yang And Jun 2008) Measured E-Service Quality Using Two Groups: Internet Purchasers And Internet Non-Purchasers. They Found That Reliability Was The Most Important Dimension For Internet Purchasers Even When Compared To Access, Ease Of Use, Personalization, Security, And Credibility.

(Li And Suomi 2009) Proposed Eight Dimensions Of E-Service Quality, Which Are: Website Design, Reliability, Responsiveness, Security, Fulfillment, Personalization, Information And Empathy.

These Researchers Emphasized Both System And Service Attributes In Measurement Of E-SQ.

III. Research Model

The Author Proposes A Model That Describes The Relationship Between Reliability, Responsiveness, Ease Of Use, Personalization, Website Design, Security, And Customer's Perception Of E-Service Quality. The Study Is Organized As Follows: First, A Conceptualization



For The Study Is Developed Through The Exploration And Definition Of The Constructs Of Conceptual Model. The Author Do This By Defining Each Construct Of Reliability, Responsiveness, Ease Of Use, Personalization, Security, And Access. Secondly, The Sample And Measures Employed In The Study Are Described, And Then The Empirical Research Results Are Reported. In Conclusion, The Results Are Discussed Along With The Theoretical And Managerial Implications Of The Findings.

IV. Research methodology

This section presents the research methodology used in this study. We describe the sample used, discuss how each of the variables included in the study is operationalized and finally present the statistical analysis.

3.1 Research variables and measurement

The constructs in this study were developed by using measurement scales adopted from prior studies. Modifications were made to the scale to fit the purpose of the study. All items were positively worded.

1. *Reliability*: refers to the ability to perform the promised service accurately and consistently, including frequency of updating the web site, prompt reply to customer enquiries, and accuracy of online purchasing and billing.. four items were adopted from (Lee and Lin,2005; Van Riel et al.,2003; Swaid and Wigand,2009; Tih and Ennis, 2004),, which had a reported reliability coefficient of 0.72. The four items were: "This site performs the service right the first time," "Services are provided when they are promised," "This site doesn't always live up to it promise," and "You never know what is happening on this site."

2. *Responsiveness* relates to flexibility, prompt delivery, consistency and accuracy of service delivered. Four items were adopted from (Madu and Madu, 2002; Swaid and Wigand, 2009; Surjadjaja et al., 2003; Tan et al., 2003; Yoo and Donthu, 2001; Yang, 2003), which had a reported reliability coefficient of 0.74. The four items were: "This site handles product returns well," "It tells me what to do if my transaction is not processed," "It takes care of problems promptly," and "Providing answers to your questions."

3. *Ease of use*: Site contains functions that help customers find what they need without difficulty, has good search functionality, and allows the customer to maneuver easily and quickly back and forth through the pages. Five items were adopted from (Zeithaml, et.al, 2000; Yang 2001, Fassnacht and Koese, 2006), which had a reported reliability coefficient of .810. The five items were: "The text on the web site is easy to read," "Web site text/labels/menu items are easy to understand," "Learning to operate the web site is easy for me," "It would be easy for me to become skilful at using the site," and "I find the web site easy to use."

4. *Personalization* dimension could involve individual designs for clients in accordance with their pattern of consumption and preferences which also results in an optimum online service, saves the customer time and increases their perception of service quality Four items were adopted from (Madu&Madu, 2002; Yang et al., 2003; Field et al, 2004; Srinivasan, Anderson, &Ponnayolu, 2002), which had a reported reliability coefficient of 0.77. The four items were: “ability to customize your use of the site,” “designed to make future transactions easier,” “site adaptation to your future needs,” and “degree of customization that is available.”
5. *Security*: addresses the technical specifications of a website’s security and payment methods, this dimension also incorporates company reputation, confidence and general confidentiality among consumers and those operating from within the company, engaging in the communication process. Four items were adopted from (Shaohan&Minjoon, 2003; Yang and Jun, 2002; Wolfinbarger and Gilly, 2003; Van Riel, et al., 2003), which had a reported reliability coefficient of 0.75. The four items were: “This site keep secret of information of my transactions,” “This site will not share my personal information with other sites,” “This site will protect my bank cards information,” and “Payment was submitted in a safe mode.”

6. *Website design*: A multidisciplinary pursuit pertaining to the planning and production of Web sites, including, but not limited to, technical development, information structure, visual design, and networked delivery. Four items were adopted from(Cox and Dale, 2001; Swaid and Wigand, 2009; Wolfinbarger and Gilly, 2003; Yoo and Donthu, 2001), which had a reported reliability coefficient of .70. The four items were: “Easy completion of online transactions.,” “Easy logging on bank’s online portal.,” “Easy understanding which button to be clicked for the next step.,” and “Ability of this internet portal in helping customer to complete a transaction quickly..”. The results of the reliability are summarizes in Table (1).

Regarding customer’s perception of e-service quality, two items used to measure it, which had a reported reliability coefficient of .83. the two items were “Based on my previous online experience, I feel the online banking service quality is good.,” and “The online service quality is better than I expected.”

4.2. Factor analysis

A principal component factor analysis was conducted to validate the underlying structure of e-service quality dimensions (Table 1). Results of the factor analysis indicated the existence of seven significant dimensions with Eigen values greater than one.

Table (1) factor analysis of the study variables

Construct and item	Mean	Factor Loading	Eigenvalue	% of Variance	Reliability
<i>Reliability (R)</i>			1.974	33.124	0.72
R1	3.62	0.599			
R2	3.48	0.567			
R3	3.49	0.706			
R4	3.67	0.735			
<i>Responsiveness (RE)</i>			2.510	32.148	0.74
RE1	3.64	0.69			
RE2	3.77	0.59			
RE3	3.97	0.57			
RE4	3.62	0.66			
<i>Ease of use (EU)</i>			2.123	40.112	0.81
EU1	3.54	0.71			
EU2	3.91	0.69			
EU3	3.57	0.68			
EU4	3.64	0.64			
EU5	3.74	0.71			
<i>Personalization (P)</i>			2.012	32.148	0.77
P1	4.01	0.55			
P2	3.94	0.60			
P3	3.67	0.71			

P4	3.75	0.58			
Security (S)			1.846	44.187	0.75
S1	3.68	0.64			
S2	3.59	0.69			
S3	3.64	0.72			
S4	3.71	0.80			
Website design (WD)			1.887	51.258	0.70
WD1	4.08	0.74			
WD2	4.15	0.67			
WD3	4.07	0.68			
WD4	4.12	0.70			
Customer's perception of e-service quality (ESQ)			1.924	42.574	0.83
ESQ1	3.87	0.58			
ESQ2	3.76	0.61			

The KMO measure of sampling adequacy value for the items listed below (table (2)) indicating sufficient intercorrelations with the Bartlett's Test of Sphericity was also found to be significant. These dimensions were six dimensions listed under e-

service quality namely Reliability (4 items), Responsiveness (4 items), Ease of use (5 items), Personalization (4 items), Security (4 items), and Website design (5 items), respectively. And e-service quality perception (2 items).

Table (2) Kaiser-Meyer-Olkin and the Bartlett's Test of Sphericity

Variables	Kaiser-Meyer-Olkin Values	Bartlett's Test of Sphericity	
		Approx.Chi-Square	Sig.
Reliability	0.687	305.145	0.000
Responsiveness	0.712	360.124	0.000
Ease of use	0.774	240.127	0.000
Personalization	0.684	210.547	0.000
Security	0.614	198.857	0.000
Website design	0.740	217.235	0.000
e-service quality perception	0.709	220.478	0.000

4.3. Correlation analysis: relationships between the variables

A correlation matrix was constructed using the variables in the questionnaire to show the strength of relationship among the variables considered in the questionnaire. According to Kline (1998), correlation

matrix is defined as "a set of correlation coefficients between a number of variables". SPSS version 7.0 was used.

Table (3) Summary of Means, standard deviations, and correlations .

Variables	R	RE	EU	P	S	WD	ESQ
Reliability	1	.326(**)	.463(**)	.458(**)	.478(**)	.254(**)	.374(**)
Responsiveness		1	.421(**)	.514(**)	.331(**)	.267(**)	.395(**)
Ease of use			1	.367(**)	.289(**)	.394(**)	.276(**)
Personalization				1	.443(**)	.337(**)	.381(**)
Security					1	.419(**)	.512(**)
Website design						1	.467(**)
e-service quality perception							1

** Correlation is significant at the 0.01 level (2-tailed).

As shown in table (3), the correlation matrix indicates that the highest coefficient of correlation in

this research between Responsiveness and Personalization, is 0.514, which is below the cut-off

of 0.90 for the collinearity problem. Thus, multicollinearity problem does not occur in this research (Hair et al., 1998). These correlations are also further evidence of validity and reliability of measurement scales used in this research (Barclay et al., 1995; Hair et al., 1998). There was a significant positive relationship between Responsiveness and Personalization ($r = 0.514, n = 160, p \leq 0.01$). The weakest correlation was for Reliability and Website design ($r = 0.254, n = 160, p \leq 0.01$).

V. Data Analysis

The statistical computer program used for the questionnaires data analysis was SPSS for Windows Version 11.0. Correlation studies were

used. The multiple regression analysis was used to further explain the significance of the independent and dependent variables. The statistical significance difference targeted was .05 alpha levels which is typical in most research (Cooper & Schindler, 2006; Sekaran, 2000).

5.1 Multiple regression analysis.

The hypotheses in this study test the six dimensions of e-service quality: Reliability; Responsiveness; Ease of use; Personalization; Security; and Website design as the independent variables relate to customer's perception of e-service quality. Multiple regression analysis was employed to test the hypotheses.

Table (4) Regression Summary. (N= 160)

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
		B	Std. error	β			Tolerance	VIF
1	(Constant)	0.977	0.176		5.558	0.000		
	Reliability	0.186	0.047	0.184	3.935	0.000	0.795	1.258
	Responsiveness	0.175	0.053	0.156	3.302	0.001	0.774	1.293
	Ease of use	0.114	0.043	0.123	2.635	0.009	0.794	1.259
	Personalization	0.061	0.046	0.060	1.337	0.008	0.868	1.152
	Security	0.214	0.033	0.305	6.503	0.000	0.791	1.264
	Website design	0.134	0.054	0.118	3.116	0.002	0.794	1.259
Notes: $R^2 = 0.332$; Adj $R^2 = 0.323$; Sig. F = 0.000 ; F-value = 38.249 ; dependent variable, $p < 0.01$								

The results of the multiple regression analysis are reported in Table 4. The variance explained in the dependent variable by the e-service quality dimensions is 33.2 per cent, which is significant ($F = 38.249, p = 0.00$). Reliability, Responsiveness, Ease of use, Personalization, Security, and Website design are supported to be positively related to customer's perception of e-service quality, Security is the most important factor in e-service quality evaluation ($\beta = 0.305, p = 0.001$). Reliability is the second important variable ($\beta = 0.184, p < 0.001$). In addition, Responsiveness, Ease of use, Personalization and Website design significantly affect customer's perception of e-service quality.

VI. Conclusion

E-service can play a critical role in improving the services quality delivered to its customers as it can achieve survival, increase satisfaction and trust and then generate the competitive success for organizations (Feindt et al. 2002). Customer perceived e-service quality is one of the critical determinants of the success of online business (Yang et al. 2004). Accordingly, there is a rise of research on the construct of e-service quality. The aim of this article was to explore the

measurement of e-service quality in the banking services setting, finding that a combination of six dimensions relating to Reliability, Responsiveness, Ease of use, Personalization, Security, and Website design, best represents the measurement of e-service quality within the online banking context. According to the survey results of the customers' perspective, "security" was rated as the most significant e-SQ dimension. This dimension was followed in ranking by Reliability.

Results of this search indicated that E-service quality was directly associated with customer perceived service quality. Accordingly, six hypotheses established in light of the direct associations among variables were strongly supported as results of correlation analysis. Associations among six E-service quality dimensions with perceived service quality. In summary, findings provided evidence that E-service quality dimensions were influential on customer perceived service quality.

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