



A Multidimensional Scale (eBankQual) for Assessments of Customers Satisfaction in E-Banking Service Settings

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Abstract

The purpose of this study is to develop a specialized instrument for measuring service quality and customer satisfaction in e-banking. For the testing of the proposed scale eBankQual survey of the customers has been conducted using schedule. The presents study recommends performance only scale the 'eBankQual' to assess customers' perception in e-banking services. In this scale author has used 13 indicators as a determinants of customer satisfaction in e-banking services. The result of statistical tests and scale purification reveals that the 'eBankQual' is suitable and reliable scale to assess customers' satisfaction in e-banking service setting.

Keywords: E-service Quality, Performance only Scale, Reliability, Customer Satisfaction

Introduction

In service industry, e-commerce is revolutionizing the way business is conducted. Electronic based business models are replacing conventional ones and organizations are rethinking business process designs and customer relationship management strategies. Banks are no exception to this transformation; a use of Information and Communication Technology ICT is revolutionizing the banking services through various unthinkable innovations (Islam et al, 2007). It is also known as e-banking, online banking which provides various alternative e-channels to using banking services i.e. ATM, credit card, debit card, internet banking, mobile banking, electronic fund transfer, electronic clearing services etc.

Objectives

This study intended for three major objectives;

1. To develop comprehensive scale for assessment of e-banking customer satisfaction.
2. To assess impact of service quality, brand perception and perceived value on customer satisfaction in e-banking and identify major determinants.
3. To examine the reliability and applicability of the proposed scale in e-banking service settings.

Hypothesis

1. **Hypothesis H¹**: There is no positive significant relationship between Service quality of e-banking service and brand perception (H^{1a}), perceived value (H^{1b}) and overall customer satisfaction (H^{1c}) in e-banking
2. **Hypothesis H²**: There is no positive significant relationship between brand perception in e-banking with perceived value (H^{2a}) and overall customers' satisfaction (H^{2b}).
3. **Hypothesis H³**: There is no positive significant relationship between perceived value and overall customers' satisfaction (H³).

Review of Literature

The marketing literature clears that, the customer satisfaction is measured via service quality and service quality measured by various measurement tools and instruments developed by various researchers and marketing consultancy organisations e.g. SERVQUAL, SERVPERF, SITQUAL, WEBQUAL, etc. A number of studies specifically address the role of satisfaction in

service contexts. Research literature suggests that service quality is a more specific judgement which can lead to a broad evaluation of customer satisfaction (Oliver, 1993; Parasuraman et al, 1985, 1988, 2005; Cronin and Taylor, 1994). The higher level of perceived service quality results in increased customer satisfaction. When perceived service quality is less than expected service quality customer will be dissatisfied (Jain and Gupta, 2004). In e-service era e-service quality is important aspect of measuring customer satisfaction (Parasuraman et al, 2005, Loiacono and Goodhue , 2000; Yoo and Donthu, 2001; Zeithaml et al, 2000; Nadiri, et al 2009 etc.). Table no 1 reveals that there are various dimensions of service quality has been used by different researchers to assess service quality and customers' satisfaction.

Scale	By	Dimensions	Method
SERVQUAL	Parasuraman, Zeithaml and Barry (1985; 1998)	Reliability, Responsiveness, Assurance, Empathy and Tangibles	Likert Scale
SERVFERF	Cronin and Taylor (1994)	Reliability, Responsiveness, Assurance, Empathy and Tangibles	Likert Scale
WebQual	Loiacono, Watson and Goodhue (2000)	Information fit to task, interactivity, trust, responsiveness, design, intuitiveness, visual appeal, innovativeness, websites flow, integrated communication, business process and viable substitute, accessibility, speed, navigability and site content.	Likert Scale
SITEQUAL	Yoo and Donthu (2001)	ease of use, aesthetic design, processing speed, and security	Likert Scale
e-SQ	Zeithaml, Parasuraman, and Malhotra (2000)	efficiency, reliability, fulfilment, privacy, responsiveness, compensation, and contact	Likert Scale
E-S-QUAL and E-RecS-QUAL	Parasuraman, Zeithaml & Malhotra in (2005)	Efficiency Fulfilment, System availability, Privacy, Responsiveness, Compensation and Contact	Likert Scale
GIQUAL	Tsoukatos and Rand (2007)	Responsiveness, Assurance, Empathy, Tangibles and Reliability	Likert Scale
BANKSERV	Akiran (1994, 2002)	polite, greet, help, promptness, neatness, apology, concern, mistake, security, informed, acotypes, advice, learn, know, servwhen, teller and staff number	Likert Scale
BANKZOT	Nadiri, et al (2009)	Desired, adequate, predicted and perceived service quality	Likert Scale
SOFTWARE Quality	Yang and Zhang (2009)	Completeness, Security, Adequacy, Simplicity, Self-descriptiveness, Functionality, Reliability, Facility, Efficiency etc.	Likert Scale
WEB-QUAL (Alternative)	Barnes and Vidgen (2002)	Usability, Design, Information, Trust, Empathy	Likert Scale
eTailQ	Wolfenbarger and Gilly (2003)	Design, Personalization, Fulfillment, reliability, privacy/security, customer service	Likert Scale

Apart from service quality brand perception and perceived value also plays crucial role in customer satisfaction in service industry. Marketing literature examined positive link between the satisfaction and the brand image and brand perception (Woodruff et al 1983; Wafa et al 2009). An obtained 'Value' of service also one of the most important factors affecting on customers satisfaction. There are close relationship between service value and customers satisfaction. Value may be conceptualized as arising from both quality and price or from what one gets and what one gives (Zeithaml, 2002). Value increases as quality increases and as

price/rent/charges or cost of transaction decreases. Therefore, in this study author has used three major dimensions e.g. service quality, brand perception and perceived value to assess customer satisfaction.

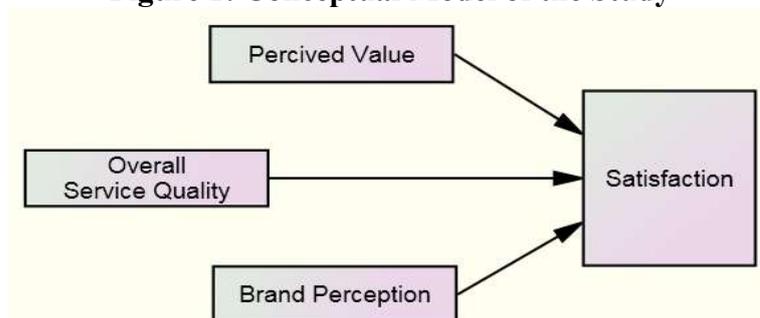
Expectation-Performance Scale Vs Performance Only Scale

Parasuraman, Zeithaml and Berry (1985; 1988; 2005) posited that Expectation-Performance Scale (Gap Analysis) is necessary to examine level of customer satisfaction in service industry. They argued that if there is expected quality of service and actual perceived performance is equal or near about equal there is customers can be satisfy, while a negative discrepancy between perceptions and expectations a ‘performance-gap’ as they call it causes dissatisfaction, a positive discrepancy leads to consumer delight. However, Cronin and Taylor (1992; 1994) argued that customer satisfaction can be obtainable with low quality, whenever one’s expectations in a given situation are low and performance is adequate to the task. Emergency situation fit this scenario well. Similarly, dissatisfaction with high quality can ensue when some element of the service delivery is not up to personal expectations. Therefore performance only scale is suitable to assess service quality and customer satisfaction. Various researchers has used performance only scale and proved that it is an excellent for measuring service quality and customer satisfaction i.e. Pont and McQuilken,2002; Brady et al (2002); Andronikidisa and Bellou (2010); Jain and Gupta (2004); Cohen et al (2006) Many empirical studies proved its validity, reliability, methodological soundness, superiority and psychometric soundness of the SERVPERF scale. More specifically Lianxi Zhou, (2004) and Aaron and Robin (2010) mentioned that the performance-only measurement of service quality (SERVPERF) as determinants of consumer satisfaction and subsequent behavioral intentions associated with banking services. Therefore this study focused on performance only scale to measuring service quality and customer satisfaction in e-banking.

Conceptual Model of the Study

In this study author has identified some important service quality dimensions of e-banking services along with brand perception and perceived value as a determinants of customers’ satisfaction (See Figure 1). There are a number of factors predetermining the consumer’s attitude and perceptions about e-banking. As per these reputed and well –known studies we have developed research hypotheses required for this study. Study conducted by Parasuraman et al (1985, 1988, 2005,), Zenithal et al. (2000, 2002), Cronin and Taylor (1992) indicates that overall service quality influence the customer perception and their satisfaction. Therefore, we have developed followings hypothesis for the study.

Figure 1: Conceptual Model of the Study



Material and Methods

The primary data has been conducted by (N= 180; 30 respondents each from six selected banks) customer survey of public and private sector banks in Satara city (Maharashtra) of India. The samples of this study have been selected using stratified judgmental sampling method and are limited to customers of State Bank of India, Bank of Baroda, Corporation Bank, IDBI Bank Ltd. Axis Bank Ltd. and HDFC Bank Ltd. The survey questionnaire has been designed using 12 dimensions of service quality dimensions i.e. System Availability, E-

Fulfillment, Accuracy, Efficiency, Security, Responsiveness, Easiness, Convenience, Cost Effectiveness, Problem Handling, Compensation and Contact including statements relating to brand perception and perceived value. Each statement in the questionnaire has positively worded and responses registered using a 5–point Likert scale (1= Strongly Disagree, 2=disagree, 3=Neutral, 4=Agree and 5= Strongly Agree). The survey data has been analyzed by using MS Excel and SPSS 19.0 software. Reliability of the dimensions examined by using Cronbach’s alpha reliability test has been conducted to examine reliability of the construct and only those dimensions have been finalized to final data analysis which have appropriate alpha value (above .700). Spearman's rank correlation analysis test used to testing hypothesis and correlation between various constructs and brand perception, perceived value and overall satisfaction; multiple linier regression test has been used for testing model fitting with the data.

Demographic Profile of the Respondents

Out of 180 respondents 82.1% of the respondents were male, 17.9 % were female. In terms of age group, 20% were below 25 years, 34.7% of 25 to 35 years, 35.8% were 36 to 50 years and 9.5% were 51 to 60 years old. Educational status of the respondents indicates that 4.2% of respondents were below HSC, 5.3% of HSC, 49.5% of graduate and 41.1% of post graduates. There were 31.6% of employees and 36.3% of businessmen are core respondents who are using most of alternative channels. However, 13.7% of professional (doctor, engineers, chartered accountants, investment consultants, insurance agents etc.) 14.2% of students and 4.2% of retired persons also covered in this study. Income profile of the respondents shows that there were 20.5% of below Rs. 1lakh, 16.3% of 1to 3 lakh, 36.8% of 3 to 8 lakh, 14.2% of 8 to 15 lakh, 4.7% of 15 to 25 lakh, 2.1% of above 25 lakh and 5.3% of dependents.

Reliability and Association of the Constructs

Internal consistency was estimated using Cronbach’s alpha (Nunnally, 1978). Only those items selected which have Cronbach alpha at least 0.700 or more and removed items with low alpha than expected alpha. The results shows that all constructs having appropriate reliability above alpha 0.700 e.g. System Availability (.821), E-Fulfillment (.765), Accuracy (.702), Efficiency (.848), Security (.911), Responsiveness (.793), Easiness (.854), Convenience (.744), Cost Effectiveness (.782), Problem Handling (.863), Compensation (.825)and Contact (.792). Table no 2 indicates that all of service quality dimensions are associated with brand perception, perceived value and overall satisfaction.

		Brand Perception	Perceived Value	Overall Satisfaction
System Availability	<i>r</i>	.273**	.250**	.513**
	Sig. (2-tailed)	.001	.002	.000
E-Fulfilment	<i>r</i>	.352**	.312**	.567**
	Sig. (2-tailed)	.000	.000	.000
Accuracy	<i>r</i>	.299**	.190*	.577**
	Sig. (2-tailed)	.000	.020	.000
Efficiency	<i>r</i>	.275**	.231**	.519**
	Sig. (2-tailed)	.001	.005	.000
Security/Assurance	<i>r</i>	.288**	.357*	.581**
	Sig. (2-tailed)	.000	.046	.000
Responsiveness	<i>r</i>	.102	.246*	.397**
	Sig. (2-tailed)	.215	.036	.000
Easy to Use	<i>r</i>	.379**	.377**	.553**

	Sig. (2-tailed)	.000	.000	.000
Convenience	<i>r</i>	.465**	.476**	.575**
	Sig. (2-tailed)	.000	.000	.000
Cost Effectiveness	<i>r</i>	.185*	.496	.526**
	Sig. (2-tailed)	.024	.041	.000
Problem Handling	<i>r</i>	.388**	.328**	.660**
	Sig. (2-tailed)	.000	.000	.000
Compensation	<i>r</i>	.324**	.365**	.498**
	Sig. (2-tailed)	.000	.000	.000
Contact	<i>r</i>	.490**	.531**	.682**
	Sig. (2-tailed)	.000	.000	.000
** . Correlation is significant at the 0.01 level (2-tailed).				
* . Correlation is significant at the 0.05 level (2-tailed).				

Hypothesis Testing

For testing hypothesis we have used Spearman's rank correlation method as non-parametric correlation to understand association between constructs and dimensions. Table 3 indicates that;

- There is significant positive correlation between overall service quality (OSQ) and brand perception ($r = .603$ sig. 000 at .010 level), service quality and perceived value ($r = .561$ sig. .000 at .010 level) and service quality and overall customer satisfaction ($r = .980$ sig. .000 at .010 level) it leads to reject H^{1a} H^{1b} and H^{1c} .
- There is significant positive correlation ship between brand perception and perceived value ($r = .644$ sig. .000 at .010 level), brand perception and overall satisfaction ($r = .699$ sig. .000 at .010 level) it leads to reject H^{2a} and H^{2b} .
- There is significant positive correlation ship between perceived value and overall satisfaction ($r = .643$ sig. .000 at .010 level) it leads to reject H^3

		Brand Perception	Perceived Value	Overall Satisfaction	Hypothesis Testing result
OSQ	<i>r</i>	.603**	.561**	.980**	Rejected (H^{1a} H^{1b} H^{1c})
	Sig. (2-tailed)	.000	.000	.000	
Brand Perception	<i>r</i>		.644**	.699**	Rejected (H^{2a} , H^{2b})
	Sig. (2-tailed)		.000	.000	
Perceived Value	<i>r</i>			.643**	Rejected (H^3)
	Sig. (2-tailed)			.000	
** . Correlation is significant at the 0.01 level (2-tailed).					
* . Correlation is significant at the 0.05 level (2-tailed).					

Model Tests For eBankQual

Based on review of the existing models, we propose a new model that addresses limitations of existing models and developed the “*eBankQual*” as scale for assessment of service quality and customer satisfaction in alternative banking services. We hypothesized that eBankQual can be useful to asses service quality of other e-services in banking and financial institutes. Therefore we have examined it validity and applicability and analyzed this model using multiple regression analysis. In multiple regressions, we have taken ENTER method since all predictor variables (service quality, brand perception and perceived value) were entered simultaneously.



Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997 ^a	.993	.993	.03689

a. Predictors: (Constant), Perceived Value, Overall Service Quality, Brand Perception

The table 4 in the output title "Model Summary" shows the 03 independent variables that are entered into regression model, the "R" (0.997) which is highly correlated with overall customer satisfaction. The R Square (.993) determination is interpreted as 99 percentages of the overall satisfaction. As per statistics literature Closer R squared gets to 1 better indicator of model fit. *Adjusted R Square* value is calculated which takes into account the number of variables in the model and the number of observations our model is based on. This Adjusted R Square value gives the most useful measure of the success of our model. In this model Adjusted R Square value of 0.993 it means our model has accounted for 93% of the variance in the criterion variable.

Table 5: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.062	3	11.354	8345.341	.000 ^a
	Residual	.239	176	.001		
	Total	34.301	179			

a. Predictors: (Constant), Perceived Value, Overall Service Quality, Brand Perception
b. Dependent Variable: Satisfaction

The table 5 (ANOVA) shows that, the F value of 8345.314 is significant at the 0.000 level. This results means that 99 percent of the variance (R Square) in overall customer satisfaction it has been significantly explained by the service quality dimensions, brand perception and perceived value in e-banking services.

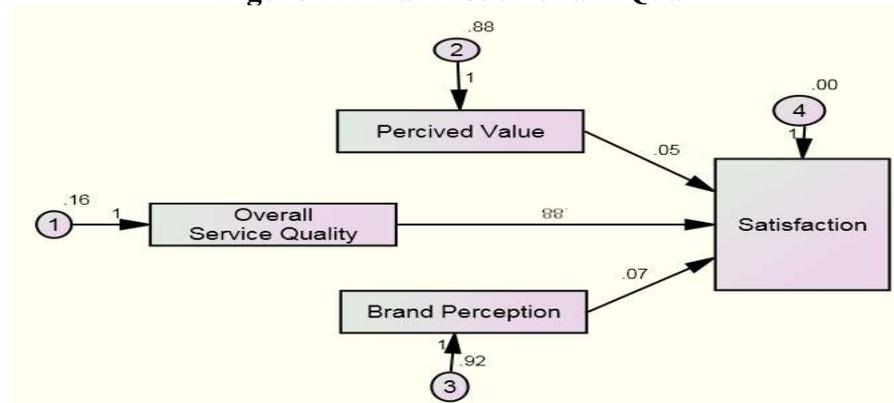
Table 6: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.009	.027		-.318	.751
	Overall Service Quality	.877	.010	.807	90.066	.000
	Brand Perception	.066	.005	.144	13.659	.000
	Perceived Value	.054	.005	.116	10.753	.000

a. Dependent Variable: Satisfaction

The standardized beta coefficients give a measure of the contributions of each variable to the eBankQual model (Table 6). A large value indicates that a unit change in this predictor variable has a large effect on overall customer satisfaction. In this model Beta value of *Overall service quality* (B = .877; Beta = .807), *Brand Perception* (B = 0.66; Beta = .144) and *Perceived Value* (B = .054; Beta = .116) indicates that these are good predictors of overall customer satisfaction in alternative banking services. While statistical results indicate that overall service quality is important predictor of the customers' satisfaction in e-banking service as compared to brand perception and perceived value in e-banking services (see Figure 2).

Figure 2: Final Model 'eBankQual'



Conclusion and Directions for Further Research

This study offers multidimensional scale the eBankQual for assessment of service quality and customer satisfaction in e-banking. The eBankQual scale shows good psychometric properties based on findings from a reliability and validity tests. This study realized that 12 dimensions of service quality with brand perception and perceived value are applicable to assess service quality of e-banking services and customer satisfaction in e-banking. The findings of this study provide a foundation upon which to pursue further research in e-banking. However, there is need to continued refinement of the scale for measuring service quality and customer satisfaction in e-banking. Although in this study it was attempted to cover all dimensions of e-service quality in e-banking, there may be certain dimensions that may have been omitted or that may become relevant. Future research can be conducted, in internet banking, mobile banking, D-mat service, and electronic fund transfer etc. to identify scale validity and new dimensions also.

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