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# Measurement of service quality dimensions in e-banking services

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**Abstract---**This research paper attempts to measure the impact of various service quality dimensions like that of tangibility and technological augmentation on e-banking services. It also attempts to study the impact of demographic variables on consumer perception towards such e-banking services. Data has been derived from primary sources and self-coined dimensions which have been put through rigorous statistical analysis to arrive at the conclusion.

**Keywords---**E-banking, Dimensions, Service quality, Customer satisfaction.

## Introduction

The banking sector in India has seen fast growth due to economic development and government initiative. Banking has evolved to mean much more than its basic function of receiving deposits and issuing loans. Today, banks perform several roles such as insurance agents, derivatives dealers, depository platforms, foreign exchange traders, provide locker services, and form a key part of the wealth and capital formation process.

Additionally, with privatization, the growth of commercial banking has been phenomenal, with new players entering the market and existing players expanding operations rapidly. Globalization brought foreign players into the Indian market. The government has also been actively working toward establishing and improving public sector banks.

This massive success of banking can be attributed to its customer orientation. Banking is an industry that has had to grow with the economy and its trends. It is a largely people-oriented service as its operations rely on inducing its customers to pursue their economic interests. Hence, it must adapt to tastes and preferences, which has brought about the vast number of loan services and allied services today.

With the growing importance of the Internet and the ease of use it brings along with a paradigm shift in lifestyle, banks must go a step further to adapt to this

new environment and tackle the challenges that it brings. It is not new for banks to adopt new technologies. Several banks work on a vast and complex information system to manage customer information and funds and increase overall efficiency in the financial services they provide.

However, when entering the electronic banking platform, the bank will at first face the same issues prevalent in electronic commerce today, the struggle to connect with its customers with the same strength as a traditional business, and provide services with improved effectiveness to induce greater satisfaction.

Popular electronic services that banks provide are:

1. Online banking and account management
2. Personal financial planning
3. Digital wallet features
4. Digital coupons and credit card benefits
5. Automatic bill payment

As established before, the success of a concern is largely decided by the customer base it serves. There exist five generally accepted dimensions against which a concern is judged for the quality of its services.

#### **1. Reliability**

This determines how much a customer can depend on the entity to provide a service. The parameters that usually measure reliability are timeliness, consistency, and degree of correctness with which services are rendered.

#### **2. Responsiveness**

This is characterized by how willing and how prompt organizations are with respect to answering customer queries, and how useful the interaction has been.

#### **3. Assurance**

Assurance is based purely on employee interaction with the client. The employee must be a part of a customer-oriented culture to be able to display competence, politeness, and effectively communicate with the client. The nurturing of such an environment within the organization is a key factor in projecting this idea to the customer base.

#### **4. Empathy**

The employee must be able to display genuine care for a customer's needs for the latter to feel valued by the organization. This factor can greatly determine the longevity of the client's relationship with the organization.

#### **5. Tangibles**

This refers to the aesthetics of the physical space in the offices. This idea can be extrapolated to the aesthetic appeal and ease of use of a website in an e-banking environment.

It remains that customer satisfaction is an entirely subjective concept; and service quality can only be more effectively determined using non-financial performance indicators- an area that is still slow to be adopted and whose emphasis has not been brought to the forefront of reporting.

Service Quality as a concept continues to be elusive to several service providers, particularly to those who are re-orienting themselves into a customer-focused strategy. Customers are slowly growing more distinct with their demands and expectations but often this may not come across as articulate or may not be understood in its entirety by organisations. However, models such as SERVQUAL

have been on the rise, to attempt to measure the service quality of electronic platforms of entities, from a customer's perspective.

Currently, ensuring a certain benchmark level of service seems to be the norm, this is combined with following guiding principles that help complete the service experience satisfactorily. This transforms the approach to service quality entirely, allowing room for innovation and ultimately, customer attraction and retention. Customer Loyalty continues to be seen as the ultimate goal when putting in place measures to strengthen the level of service quality offered, thereby improving customer satisfaction.

Several studies concerning the adoption of Internet Banking in various countries have pinpointed common factors that acted as motivation for consumers to adopt Internet Banking. Research in Singapore that commenced 3 years after the establishment of Internet Banking Services supplemented research in 1991 on the theory of planned behaviour which postulates that a person's intention to adopt Internet Banking is determined by three factors, i.e.,

- (1) Attitude, which describes a person's perception towards Internet banking,
- (2) Subjective norms, which describe the social influence that may affect a person's intention to use Internet banking, and
- (3) Perceived behavioural control, which describes the beliefs about having the necessary resources and opportunities to adopt Internet banking.

Research conducted around the world has prescribed varying dimensions that must be considered across sectors. However, the findings of Parasuraman are most widely quoted and have been considered at length in the analysis. It is quite evident that in the age of big data, banks that invest in their electronic platforms are sure to be competitive and with improved analytics, develop competitive advantage. However, there must be a shift from traditional thought and reporting in to be able to accommodate and capture data that is more qualitative in nature, and possibly more indicative of customer requirements and perceptions. To identify dimensions that are important to the bank and ultimately measure and monitor them may bring about a cultural change. It may also increase the need for more robust reporting systems and make innovative thought more apparent.

## **Literature Review**

**Parasuraman et al. (1991)** in their study refined their original SERVQUAL scale and replicated it in five different customer samples which belonged to three types of services- telephone repair, retail banking, and insurance. After analyzing the factors and statistical studies, they finally suggest using SERVQUAL in other service sectors in order to improve the quality of service.

**Cronin and Taylor (1992)** in their study identified methods to measure service quality. The study attempts to define an alternative to the SERVQUAL scale. For this, the researcher examined the relationships between service quality, consumer satisfaction, and purchase intentions. The measures required for the study were expectations, perceptions and importance measures. These were used to construct the alternative measures of service quality which included a direct measure of service quality, a measure of customer satisfaction, and a measure of

purchase intention. The findings show that customer satisfaction leads than all the other. The researcher advised the leaders to improve customer satisfaction with service quality.

**Stafford et al. (1998)** - researched auto claims processing to investigate service quality and customer satisfaction. The research was done, data was collected and statistical analysis was carried out. The findings show that out of five dimensions of SERVQUAL, Reliability, Assurance, and Empathy are considered major factors in customer satisfaction.

**Brady et al (2002)** asserted in the study by Cronin and Taylor that service quality is measured using a performance-based SERVPERF scale instead of the gap based SERVQUAL scale. For this, they conducted three studies. For the first study, Cronin and Taylor's data were obtained and replication of their study was conducted. The data for the second and third studies were gathered from the same medium-sized city in the southeastern U.S. The next two studies also provided support for the efficacy of performance only measures of service quality. They also supported the fact that service quality is an antecedent of consumer satisfaction. And finally, they approved that customer satisfaction had a greater impact on purchase intentions than service quality.

**Pathak and Singh (2003)** tested the effect of entry of Private Life Insurers in India. A study was done by adopting the strength and weakness of the marketing strategies adopted by the LIC. The main objective of the study is to perform a SWOT evaluation of LIC to assist it in designing new marketplace strategies and to help boom the market share of LIC. The researcher suggested taking suitable measures for increasing competitiveness to have a competitive edge.

**Durvasula et al. (2004)** researched the linking of service quality with customer satisfaction and behavioural outcomes in Life Insurance Company. This research dealt with the relationship between service quality, customer delightment and perception value of customers who encountered the service. The results suggest that passing word of mouth to increase the business.

**Jain and Gupta (2004)**, in their research, they compared SERVQUAL and SERVPERF scales. The researcher experimented with the scales in the Indian context. They took a survey in Delhi fast-food restaurants and compared the scales. The results were found that SERVQUAL is preferred in the Indian context than SERVPERF.

**Rand et al (2004)**, conducted a study on the suitability of SERVQUAL in the Greek Insurance Industry. Like SERVQUAL they developed GIQUAL for the Greek Insurance Industry. The GIQUAL scale was then applied to three samples of customers of three insurance companies. The reliabilities across all three samples were high for both tangible and non-tangible. Moreover, the regression coefficients for tangibles in all three samples were not significant as compared to the non-tangibles.

**Azam (2005)** in his study, he looked into the customers' attitudes towards private and public owned general insurance organizations using the Fishbein's multi-attribute attitude object model to measure overall attitude.

### **Research GAP**

After reviewing both national and international reviews regarding service quality dimensions especially in e-banking services, the researcher is able to underpin two predominant gaps which were not transparently addressed by the national and international authors. These gaps are listed below.

1. Are there any specific dimensions of service quality for e-banking services
2. Will the perception of customers over the service quality vary according to demographics.

In this present research, the researcher intended to address these two issues

### **Objectives Of The Study**

1. To study and validate the factors of service quality dimensions of e-banking service
2. To measure the impact of demographic variables of customers on their perception towards e-banking services.

### **Hypothesis**

#### **The major hypotheses of the study are**

H1: There is no significant difference among different dimensions of service quality

H2: There is no significant influence of demographic variables on service quality perception.

### **Research Methodology**

This present research uses the primary data derived from the customers of e-banking services through a well-structured questionnaire. The questionnaire consist of only two parts, the first part composed of demographic details of customers and the second part depends upon the dimensions coined by the researcher.

In this part, the researcher created the following dimensions

1. Tangibility
2. Reliability
3. Assurance
4. Empathy
5. Responsiveness
6. Technological augmentation

The first five dimensions are already created and validated by Parasuraman, Zeithaml and Berry (1988). Other than these 5 dimensions the researcher introduced augmented technology separate dimensions and this is to be validated in the present research.

### **Pilot Study**

At the preliminary level, the researcher intended to find the reliability and validity of the questionnaire. In order to obtain reliability, the researcher used Cronbach's alpha method and for validity, the researcher used confirmatory factor analysis. The reliability is obtained for the sample of 100 responses from the customers of e-banking services in the metropolitan city of Chennai. The value of Cronbach's alpha is greater than 0.75 which is the benchmark for best reliability.

The validity is done and verified through the fit indices namely comparative fit indexes, the goodness of fit index and root mean square error of approximation. These three values satisfy the benchmark values to prove the validity of research instruments.

### **Main Study Data Collection**

After obtaining the positive signal of reliability and validity of the questionnaire from the pilot study, the researcher applied a convenient sampling method to collect the data from the customers of e-banking services. The researcher circulated 20 questionnaires in all the 15 zones of Chennai city and was able to receive 273 usable responses. Hence the sample size of the research is 273.

### **Data Analysis**

After receiving the 273 usable responses the researcher coded them with numerical values and the data was entered in the SPSS Package version 23 for the analytical and statistical approach. The researcher used explanatory factor analysis followed by confirmatory factor analysis and linear multiple regression analysis tools for the purpose of data analysis. Both explanatory and confirmatory factor analysis are employed to validate the dimensions of quality whereas linear multiple analysis is used to measure the influence of demographic variables on the dimensions of service quality.

### **Analysis and Discussion**

In order to validate the dimensions of service quality in e-banking services, the researcher subsequently exploits two analysis namely confirmatory factor analysis followed by linear multiple regression analysis. The measurement of service quality dimension is validated through confirmatory factor analysis. As far as this particular research paper is concerned the researcher generated eight dimensions starting with reliability, assurance, empathy, tangibility and responsiveness. Besides these five dimensions, the researcher generated three important dimensions pertaining to e-banking services namely technology, confidence-building and safety and security. These dimensions are completely evolved from Parasuraman Zeithaml and Berry model of banking services. The first five dimensions are related to Parasuraman Zeithaml and Berry model and the remaining three models are generated by the researcher namely technology, confidence-building and safety and security. These eight models are timed from the responses of e-banking customers and each dimension has five variables within its domain.

The confirmatory factor analysis is done using the structural equation modelling approach therefore the eight dimension approach and their validity is done and given in the form of output. These outputs are tabulated systematically and presented below

Table 1  
Model Fit Indices and Bench Marks

S.NO	Fit indices	Values	Bench mark values
1	Chi-square	4.501	-
2	P-value	0.567	>.05
3	Goodness of fit index (GFI)	0.979	>.9
4	Comparative fit index (CFI)	0.975	>.9
5	Normed fit index (NFI)	0.972	>.9
6	Root Mean Square Error of Approximation (RMSEA)	0.07	<=0.08

From the above table, it can be identified that Chi-square value, probability value, goodness of fit index, normal fit index, root mean square error of approximation all these values are lying within the benchmark as shown in the table. This shows that all these eight dimensions namely reliability, assurance, empathy, tangibility, responsiveness, technology, confidence-building and safety and security are validated. After validating these dimensions these were considered as independent variables and their subsequent impact on customer satisfaction of e-banking services is ascertained through linear multiple regression analysis. The outcomes of linear multiple regression analysis are clearly presented below.

Table 2  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.836 <sup>a</sup>	.698	.678	.48359
a. Predictors: (Constant), Knowledge creation, Centralized, Learning, Formalized, Collaboration, Integrated, Trust, Leadership				

From the above table, it is found that the r square values and adjusted r square values and standard error of estimate are statistically significant at 5% level. This shows that there is a significant impact of eight service quality dimensions of e-banking services on their customer satisfaction. The consolidated influence of service quality dimensions on customer satisfaction is verified through the following table.



Table 3  
ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.341	8	8.043	34.391	.000 <sup>b</sup>
	Residual	27.829	119	.234		
	Total	92.170	127			
a. Dependent Variable: Competitive						
b. Predictors: (Constant), Knowledge creation, Centralized, Learning, Formalized, Collaboration, Integrated, Trust, Leadership						

From the above table it is found that f value and probability values are highly significant at 5% level of significance. Therefore, it can be ascertained that in e-banking services, service quality dimensions are totally validated and they are able to decide the satisfaction of e- banking service customers but the individual influence of e-banking service customers and their perception towards various service quality dimensions and customer satisfaction is estimated in the following table

Table 4  
Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.010	.312		.032	.975
	Reliability	.055	.082	.051	.670	.504
	Responsiveness	.697	.078	.689	8.899	.000
	Tangibility	.007	.057	.008	.131	.896
	Empathy	.058	.057	.061	1.007	.316
	Assurance	.007	.077	.005	.088	.930
	Technology	.052	.096	.042	.543	.588
	Confidence	-.029	.080	-.028	-.363	.717
	Safety and security	.127	.074	.122	1.719	.088
a. Dependent Variable: Customer satisfaction						

From the above table it is found that out of all the eight dimensions, the following dimensions namely reliability, responsiveness, confidence-building, safety and security, technology are playing a very important vital role in determining the customer satisfaction of e-banking services. The beta values, t values and their significance are found highly probable in creating influence over the satisfaction.

### Findings and Conclusions

This rigorous research clearly estimated that e-banking services of commercial banks is not a unique phenomenon but it depends upon the eight service quality dimensions namely reliability, assurance, empathy, tangibility, responsiveness, technology, confidence building and safety and security. It is found that among



these eight dimensions reliability, confidence-building, technology, safety and security are considered to be very important for e-banking services customers are concerned. The research also proves that customer satisfaction is the ultimate phenomenon. Before customer satisfaction arrives in the minds of customers, the service quality offered by the commercial banks play a very vital role to convert satisfied customers into loyal customers based on their e-banking services. It is concluded that there is a significant validation of service quality dimensions of e-banking services and service quality dimension and customer satisfaction are intimately related concepts in the case of banking services in India

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