

Restructuring the SERVQUAL Dimensions in Banking Service: A Factor Analysis Approach in Indian Context

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Abstract

Purpose: This research is an empirical study within the field of management, focused upon restructures the dimension of Servqual in banking service through factor analyses in Indian context.

Methodology: It is solely based upon data research which includes quantitative and deductive reasoning. The data for the study collected from the primary as well as secondary sources, with the help of questionnaire. Data was collected from 309 banking customers located in different cities of Rajasthan. Statistical tools such as Karl Pearson's Coefficient of Correlation, Principal Component Analysis, The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test, Bartlett's sphericity test, Chi-square, Cronbach's alpha test of Reliability and Factor Analysis was used to test the hypothetical relationships among variables.

Findings: This study reveals five different dimensions from the original Servqual scale. Modified Servqual therefore is a recommended instrument for future research when measuring banking service quality In Indian context as it specifically addressed the multi-dimensional character of banking service in Indian context.

Research Implications: The findings from this study provide important information that can be used in the future research on service quality in banking arena by the industry, researchers and academia.

Key Words: - Servqual, Service Quality, Expectation, Perception, Indian Context

Introduction

In the industrialized nations, over the past two decades, the service sector has become the dominant element of the economy. Quality has come to be recognized as a strategic tool for attaining operational efficiency and improved business performance (Anderson and Zeithaml, 1984; Babakus and Boller, 1992; Garvin, 1983; Phillips, Chang and Buzzell, 1983). This is true for the services sector too. Several authors have discussed the unique importance of quality to service firms (e.g., Normann, 1984; Shaw, 1978) and have demonstrated its positive relationship with profits, increased market share, return on investment, customer satisfaction, and future purchase intentions (Anderson, Fornell and Lehmann 1994; Boulding et al.,

1993; Buzzell and Gale, 1987; Rust and Oliver, 1994). One obvious conclusion of these studies is that firms with superior quality products outperform those marketing inferior quality products.

These were the main reason that service quality has become an important research topic. Besides, interest for service quality was challenged with the intangible nature of service quality and the complexity of the service quality measurement. It is difficult for the service provider to define and provide quality service. Researchers are trying to define the concept of the service quality as well as the way to measure it effectively. There has been controversy about the concept and the measurement of service quality and several questions have not yet been answered.

Review of Literature

Servqual Concept

SERVQUAL provides a technology for measuring and managing service quality. Since 1985, when the technology was first published, its innovators Parasuraman, Zeithaml and Berry, have further developed, promulgated and promoted the technology through a series of publications (Parasuraman et al., 1985; 1986; 1988; 1990; 1991a; 1991b; 1993; 1994; Zeithaml et al., 1990; 1991; 1992; 1993).

SERVQUAL is founded on the view that the customer's assessment of service quality is paramount. This assessment is conceptualized as a gap between what the customer expects by way of service quality from a class of service providers (say, all opticians), and their evaluations of the performance of a particular service provider (say a single Specsavers store). Service quality is presented as a multidimensional construct. In their original formulation Parasuraman et al. (1985) identified ten components of

service quality:

- (1) Reliability;
- (2) Responsiveness;
- (3) Competence;
- (4) Access;
- (5) Courtesy;
- (6) Communication;
- (7) Credibility;
- (8) Security;
- (9) Understanding/Knowing The Customer;
- (10) Tangibles.

In their 1988 work these components were collapsed into five dimensions: reliability, assurance, tangibles, empathy, and responsiveness, as defined in Table 1. Reliability, tangibles and responsiveness remained distinct, but the remaining seven components collapsed into two aggregate dimensions, assurance and empathy.

Parasuraman et al. developed a 22-item instrument with which to measure customers' expectations and perceptions (E and P) of the five RATER dimensions. Four or five numbered items are used to measure each dimension. The instrument is administered twice in different forms, first to measure expectations and second to measure perceptions.

Table - 1
SERVQUAL Dimensions

Dimensions	Definition	Items in scale
Reliability	The ability to perform the promised service dependably and accurately	4
Assurance	The knowledge and courtesy of employees and their ability to convey trust and confidence	5
Tangibles	The appearance of physical facilities, equipment, personnel and communication materials	4
Empathy	The provision of caring, individualized attention to customers	5
Responsiveness	The willingness to help customers and to provide prompt service	4

In 1991, Parasuraman et al. published a follow-up study which refined their previous work (1991b). Wording of all expectations items changed. The 1988 version had attempted to capture respondents' normative expectations. For example, one 1988 expectations item read: "Companies offering a particular services should keep their records accurately". The revised wording focused on what customers would expect from "excellent service companies". The sample item was revised thus: "Excellent companies offering a particular service will insist on error-free records". Detailed wording of many perceptions items also changed. Two new items, one each for tangibles and assurance, were substituted for two original items. The tangibles item referred to the appearance of communication materials. The assurance item referred to the knowledge of employees. Both references had been omitted in the 1988 version.

Analysis of SERVQUAL data can take several forms: item-by-item analysis (e.g. $P1 - E1$, $P2 - E2$); dimension-by-dimension analysis (e.g. $(P1 + P2 + P3 + P4/4) - (E1 + E2 + E3 + E4/4)$, where $P1$ to $P4$, and $E1$ to $E4$, represent the four perception and expectation statements relating to a single dimension); and computation of the single measure of service quality $((P1 + P2 + P3 \dots + P22/22) - (E1 + E2 + E3 + \dots + E22/22))$, the so-called SERVQUAL gap.

Without question, SERVQUAL has been widely applied and is highly valued. But Evidence from past research suggests that using a generic scale to measure service quality across industries is not suitable without modification (Akbaba, 2006; Caro & Carcia, 2008; Ladhari, 2008); therefore, the more specific the measure is, the more valuable the potential information could be (Karatepe, Yavas & Babakus, 2005; Ladhari, 2008). It is common for scales to be modified when measuring service quality, and this has been done by many researchers who felt the need for industry specific measures (Karatepe, Yavas & Babakus, 2005; Chowdhary & Prakash, 2007) and culture specific measures (Cui, Lewis & Park, 2003; Karatepe, Yavas & Babakus, 2005; Prayag, 2007). To customize a scale or adapt questions that have already been used in other studies is more efficient than using questions that have not been tested, given that they are adequate for collecting the data needed by the researcher (Saunders, Lewis & Thornhill, 2007).

The SERVQUAL scale extends across many industries and cultures. For this reason it becomes a weaker instrument that is used as a base for developing new service quality scales in different cultures (Gaur & Agrawal, 2006). The SERVQUAL is most frequently used to measure retail

service quality. However, it is not suitable for use in other cultures without modifications (Gaur & Agrawal, 2006). Thus this study is focused upon restructuring the Servqual scale in Indian context.

Objectives

- To refine SERVQUAL in Indian context
- To find new SERVQUAL dimensions in banking service using factor analysis approach in Indian context
- To offer directions for future research and SERVQUAL use
- To check the reliability of the new SERVQUAL dimensions

Hypothesis

The original Servqual dimensions i.e. Tangibles, Responsiveness Reliability, Assurance, and Empathy will remain same after applying factor analysis in Indian Context

Methodology

The research is an empirical study within the field of management, focused upon service quality. It is solely based upon data research which includes quantitative and deductive reasoning as well as a collection of information from previous research from various academic journals and books in which the theoretical framework was based upon. The data for the study collected from the primary as well as secondary sources, with the help of questionnaire. The study aims to find the new dimensions of SERVQUAL in Indian context. More than 600 questionnaires were distributed to customers of banking service but only 309 filled in questionnaires were received which make the sample size of the study.

As suggested by Parasuraman, Zeithaml and Berry (1988) it can be appropriated to modify the items of the Servqual instrument to make the survey more relevant to the context of a particular service environment. Also it can be appropriate to add or drop items, thus four items were added to the instrument. The wordings of the original Servqual items were modified slightly to fit in the banking context.

Statistical tools such as Karl Pearson's Coefficient of Correlation, Principal Component Analysis, The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test, Bartlett's sphericity test, Chi-square, Cronbach's alpha test of Reliability and Factor Analysis was used to test the hypothetical relationships among variables. Statistical

software such as Micro Soft Excel and SPSS-17 were used to analyze the raw data.

Instrument

The new modified scale used for this study was divided into three sections: the first section contained five demographic questions which required respondents to choose an option related to age, gender, marital status, education level, income level etc. The second and third sections, each contained 25 items of expectation and perception that asked respondents to choose a number on the Likert scale that best describes the way they feel about dealing in banking in Rajasthan: five point Likert scale ranging from 7 = Strongly Agree to 1 = Strongly Disagree

Respondents' Demographic Characteristics (Table – 2)

The sample profile of customers in banking services consisted of 189 male and 120 females. According to age while 99 customers fell under the category of below 21 years; 80 customers belonged to the age group of 21 to 34 years, 59 to the age group of 35 to 49 years, 43 to the group of 50 to 64 years and 28 were 65 years and above. The table 2 also indicates the annual income of customers' which shows that 29 customers fell under the category of Rs. 100000; 86 customers belonged to income group of Rs.

100001 to 300000, 93 to the group of Rs. 300001 to 500000, 59 to the group of Rs. 500001 to 700000 and 42 were Rs. 700001 and above. Overall overwhelming majority (63%) of the respondents earned more than Rs. 300000 annual income.

In terms of marital status, a significant majority of the respondents (195) married while (114) respondents are unmarried. Most of the surveyed respondents in banking services (105) are from Ajmer, followed by Bikaner (71), Jaipur (68) and Udaipur (65).

In terms of academic qualifications, it is not surprising that majority (117) of the respondents is graduate followed by post-graduate (92), diploma/certification (47), high school (32), intermediate education (15) and others (06). Overall, the educational level of the sample was high, with 70% of the sample having a university degree or a master degree or above. Only an insignificant segment (5%) of the sample profile have a intermediate education or below.

As regard the profession of the respondents, a significant majority (87) of the respondents are students followed by Academician (62), Businessman (26), Government employee (49), Private employee (56), Housewife (18) and others (11).

Table 2
Respondents Profile

Variables	Frequency	Percentage	Cumulative Percentage
Gender			
Male	189	61	61
Female	120	39	100
Total	309	100	
Age Group in Years			
Below 21 years old	99	32	32
21 to 34 years old	80	26	58
35 to 49 years old	59	19	77
50 to 64 years old	43	14	91
65 years and older	28	9	100
Total	309	100	
Education			
Up to Rs. 1,00,000	29	9	9
Rs. 1,00,001 to 3,00,000	86	28	37
Rs. 3,00,001 to 5,00,000	93	30	67
Rs. 5,00,001 to 7,00,000	59	19	86
Rs. 7,00,001 and above	42	14	100
Total	309	100	

Family Status			
Married	195	63	63
Single	114	37	100
Total	309	100	
Location			
Ajmer	105	34	34
Jaipur	68	22	56
Udaipur	65	21	77
Bikaner	71	23	100
Total	309	100	
Education			
Intermediate Education	15	5	5
High School	32	10	15
Diploma/Certification	47	15	30
Bachelors Degree	117	38	68
Postgraduate Degree	92	30	98
Other	6	2	100
Total	309	100	
Profession			
Student	87	28	28
Academician	62	20	48
Businessman	26	8	56
Government Employee	49	16	72
Private Employee	56	18	90
Housewife	18	6	96
Others	11	4	100
Total	309	100	

Data Analysis and Hypothesis Testing

In order to examine the dimensionality of SERVQUAL instrument from the Indian perspective, an exploratory factor analysis using the principal component method with varimax rotation was performed. Importantly, before conducting the exploratory factor analysis, the adequacy or appropriateness of data for factor analysis was examined with the help of Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett's test of sphericity. The factor analysis was conducted using Gap scores (Perception-Expectation) of Servqual scale.

Correlation Matrix

The Table – 3 contains the Pearson correlation coefficient

between all pairs of questions, whereas the Table – 4 contains the one tailed significance of these coefficients. This correlation matrix is used to check the pattern of relationships. After scanning the correlation matrix it is found that the majority of significance value of each variable is less than 0.05. It is also found that correlation of pairs of variables is either low or moderate which indicates that the matrix does not have the singularity in data. The determinant of correlation matrix (listed at the bottom of the matrix) is also greater than the necessary value of 0.00001. Therefore multi co linearity is not a problem for these data. To sum up with the correlation matrix, the entire variable correlated fairly well and none of the correlation coefficients are particularly large; therefore, there is no need to consider eliminating any variables at this stage.

Table - 3

Correlation Matrix^a

	I-1	I-2	I-3	I-4	I-5	I-6	I-7	I-8	I-9	I-10	I-11	I-12	I-13	I-14	I-15	I-16	I-17	I-18	I-19	I-20	I-21	I-22	I-23	I-24	I-25
I-1	1.00	0.18	0.21	0.14	0.21	0.11	0.04	0.04	0.08	0.14	0.01	0.15	0.18	0.17	0.33	0.39	0.25	0.15	0.16	0.11	0.20	0.16	0.19	0.18	0.20
I-2	0.18	1.00	0.16	0.12	0.19	0.18	0.07	0.23	0.11	0.16	0.04	0.07	0.17	0.23	0.14	0.23	0.15	0.16	0.32	0.20	0.22	0.18	0.14	0.24	0.21
I-3	0.21	0.16	1.00	0.24	0.28	0.09	0.15	0.12	0.10	0.22	0.26	0.22	0.29	0.28	0.27	0.16	0.13	0.16	0.19	0.20	0.25	0.23	0.09	0.18	0.24
I-4	0.14	0.12	0.24	1.00	0.31	0.17	0.08	0.27	0.20	0.08	0.13	0.23	0.20	0.29	0.17	0.30	0.27	0.19	0.16	0.16	0.22	0.19	0.18	0.26	0.30
I-5	0.21	0.19	0.28	0.31	1.00	0.25	0.17	0.15	0.20	0.12	0.17	0.11	0.22	0.30	0.25	0.28	0.30	0.22	0.29	0.31	0.21	0.18	0.09	0.20	0.26
I-6	0.11	0.18	0.09	0.17	0.25	1.00	0.18	0.19	0.07	0.15	0.14	0.08	0.11	0.15	0.11	0.17	0.16	0.08	0.20	0.14	0.19	0.20	0.09	0.17	0.19
I-7	0.04	0.07	0.15	0.08	0.17	0.18	1.00	0.21	0.19	0.05	0.19	0.04	0.16	0.09	0.05	0.08	0.12	0.18	0.08	0.06	0.14	0.12	0.04	0.11	0.15
I-8	0.04	0.23	0.12	0.27	0.15	0.19	0.21	1.00	0.21	0.07	0.13	0.12	0.20	0.04	-0.05	0.08	0.14	0.14	0.18	0.16	0.17	0.13	0.10	0.16	0.16
I-9	0.08	0.11	0.10	0.20	0.20	0.07	0.19	0.21	1.00	0.13	0.06	0.03	0.21	0.09	0.05	0.11	0.19	0.12	0.20	0.02	0.08	0.14	0.19	0.11	0.19
I-10	0.14	0.16	0.22	0.08	0.12	0.15	0.05	0.07	0.13	1.00	0.12	0.10	0.09	0.27	0.19	0.18	0.20	0.22	0.27	0.14	0.15	0.23	0.16	0.13	0.21
I-11	0.01	0.04	0.26	0.13	0.17	0.14	0.19	0.13	0.06	0.12	1.00	0.17	0.21	0.30	0.12	0.13	0.19	0.11	0.16	0.09	0.25	0.18	0.13	0.20	0.17
I-12	0.15	0.07	0.22	0.23	0.11	0.08	0.04	0.12	0.03	0.10	0.17	1.00	0.28	0.24	0.18	0.21	0.20	0.25	0.16	0.11	0.21	0.14	0.15	0.17	0.13
I-13	0.18	0.17	0.29	0.20	0.22	0.11	0.16	0.20	0.21	0.09	0.21	0.28	1.00	0.22	0.19	0.18	0.19	0.29	0.23	0.19	0.19	0.36	0.14	0.27	0.24
I-14	0.17	0.23	0.28	0.29	0.30	0.15	0.09	0.04	0.09	0.27	0.30	0.24	0.22	1.00	0.30	0.31	0.25	0.34	0.24	0.20	0.33	0.22	0.13	0.30	0.29
I-15	0.33	0.14	0.27	0.17	0.25	0.11	0.05	-0.05	0.05	0.19	0.12	0.18	0.19	0.30	1.00	0.40	0.20	0.26	0.27	0.19	0.17	0.13	0.15	0.15	0.09
I-16	0.39	0.23	0.16	0.30	0.28	0.17	0.08	0.08	0.11	0.18	0.13	0.21	0.18	0.31	0.40	1.00	0.26	0.31	0.24	0.26	0.33	0.22	0.20	0.30	0.24
I-17	0.25	0.15	0.13	0.27	0.30	0.16	0.12	0.14	0.19	0.20	0.19	0.20	0.19	0.25	0.20	0.26	1.00	0.33	0.30	0.23	0.29	0.21	0.20	0.28	0.27
I-18	0.15	0.16	0.16	0.19	0.22	0.08	0.18	0.14	0.12	0.22	0.11	0.25	0.29	0.34	0.26	0.31	0.33	1.00	0.30	0.26	0.22	0.27	0.07	0.27	0.16
I-19	0.16	0.32	0.19	0.16	0.29	0.20	0.08	0.18	0.20	0.27	0.16	0.16	0.23	0.24	0.27	0.24	0.30	0.30	1.00	0.23	0.31	0.25	0.20	0.28	0.19
I-20	0.11	0.20	0.20	0.16	0.31	0.14	0.06	0.16	0.02	0.14	0.09	0.11	0.19	0.20	0.19	0.26	0.23	0.26	0.23	1.00	0.22	0.18	0.07	0.26	0.13
I-21	0.20	0.22	0.25	0.22	0.21	0.19	0.14	0.17	0.08	0.15	0.25	0.21	0.19	0.33	0.17	0.33	0.29	0.22	0.31	0.22	1.00	0.28	0.25	0.24	0.30
I-22	0.16	0.18	0.23	0.19	0.18	0.20	0.12	0.13	0.14	0.23	0.18	0.14	0.36	0.22	0.13	0.22	0.21	0.27	0.25	0.18	0.28	1.00	0.18	0.32	0.25
I-23	0.19	0.14	0.09	0.18	0.09	0.09	0.04	0.10	0.19	0.16	0.13	0.15	0.14	0.13	0.15	0.20	0.20	0.07	0.20	0.07	0.25	0.18	1.00	0.16	0.09
I-24	0.18	0.24	0.18	0.26	0.20	0.17	0.11	0.16	0.11	0.13	0.20	0.17	0.27	0.30	0.15	0.30	0.28	0.27	0.28	0.26	0.24	0.32	0.16	1.00	0.21
I-25	0.20	0.21	0.24	0.30	0.26	0.19	0.15	0.16	0.19	0.21	0.17	0.13	0.24	0.29	0.09	0.24	0.27	0.16	0.19	0.13	0.30	0.25	0.09	0.21	1.00

Table - 4
Significance Level Correlation Matrix

	I-1	I-2	I-3	I-4	I-5	I-6	I-7	I-8	I-9	I-10	I-11	I-12	I-13	I-14	I-15	I-16	I-17	I-18	I-19	I-20	I-21	I-22	I-23	I-24	I-25
I-1																									
I-2	0.00																								
I-3	0.00	0.00																							
I-4	0.01	0.02	0.00																						
I-5	0.00	0.00	0.00	0.00																					
I-6	0.04	0.00	0.07	0.00	0.00																				
I-7	0.27	0.13	0.01	0.10	0.00	0.00																			
I-8	0.24	0.00	0.02	0.00	0.01	0.00	0.00																		
I-9	0.09	0.03	0.00	0.09	0.00	0.03	0.00	0.00																	
I-10	0.01	0.00	0.00	0.09	0.03	0.01	0.19	0.11	0.02																
I-11	0.45	0.23	0.00	0.01	0.00	0.01	0.00	0.01	0.16	0.03															
I-12	0.01	0.13	0.00	0.00	0.03	0.08	0.23	0.02	0.34	0.04	0.00														
I-13	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.07	0.00	0.00													
I-14	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.27	0.06	0.00	0.00	0.00	0.00												
I-15	0.00	0.01	0.00	0.00	0.00	0.04	0.18	0.20	0.21	0.00	0.00	0.02	0.00	0.00											
I-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
I-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
I-18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
I-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
I-20	0.03	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.37	0.01	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
I-21	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
I-22	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00				
I-23	0.00	0.01	0.06	0.00	0.08	0.08	0.23	0.05	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
I-24	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
I-25	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.07	0.00	

a. Determinant = .027

Measure of Sample Adequacy (MSA)

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy tests whether the partial correlation among variables are small or not. High values (close to 1.0) generally indicate that a factor analysis may be useful with data. Bartlett's test of sphericity tests the hypothesis that correlation matrix is an identity matrix, which would indicate that variables are unrelated. Small values (less than

0.05 or 5%) of the significance level indicate that factor analysis may be useful for data.

Table – 5 indicate that in the present test the Kaiser-Meyer-Olkin (KMO) Measure was 0.867, Bartlett's sphericity test indicating Chi-square = 1279.634, df = 300 with a significance of 0.000 which shows that the data is useful for the factor analysis

Table – 5
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.867
Bartlett's Test of Sphericity	Approx. Chi-Square	1279.634
	Df	300
	Sig.	.000

Principal Component Analysis

Table – 6 shows the table of communalities before and after extraction. Principal component analysis works on the initial assumption that all variance is common; therefore, before extraction the communalities are all 1. The

communalities in the column labeled Extraction reflect the common variance in the data structure.

Table – 6 reveals that, communalities are ranging from 0.504 to 0.690 which indicates that the extracted components represent the variable well.

Table – 6
Communalities

	Initial	Extraction
Item-1	1.000	.523
Item- 2	1.000	.644
Item- 3	1.000	.554
Item- 4	1.000	.570
Item- 5	1.000	.559
Item- 6	1.000	.537
Item- 7	1.000	.669
Item- 8	1.000	.541
Item- 9	1.000	.671
Item- 10	1.000	.555
Item- 11	1.000	.575
Item- 12	1.000	.504
Item- 13	1.000	.530
Item- 14	1.000	.593
Item- 15	1.000	.601
Item- 16	1.000	.546
Item- 17	1.000	.537
Item- 18	1.000	.572
Item- 19	1.000	.690
Item- 20	1.000	.519
Item- 21	1.000	.482
Item- 22	1.000	.613
Item- 23	1.000	.604
Item- 24	1.000	.534
Item- 25	1.000	.591
<i>Extraction Method: Principal Component Analysis.</i>		

Tables no. 7 lists the eigenvalues associated with each linear component (factor) before extraction, after extraction and after rotation. The eigenvalues associated with each factor

represent the variance explained by that particular linear component and the table – 7 also displays the eigenvalue of variance explained.

Table – 7
Total Variance Explained

Items	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.597	26.390	26.390	6.597	26.390	26.390	4.340	17.360	17.360
2	3.511	14.044	40.434	3.511	14.044	40.434	3.320	13.281	30.641
3	2.140	8.562	48.996	2.140	8.562	48.996	3.106	12.426	43.067
4	2.060	8.241	57.237	2.060	8.241	57.237	3.052	12.210	55.277
5	1.808	7.233	64.470	1.808	7.233	64.470	2.174	8.697	63.974
6	1.170	4.680	69.150	1.170	4.680	69.150	1.292	5.169	69.150
7	0.924	3.696	72.846						
8	0.762	3.047	75.893						
9	0.703	2.813	78.706						
10	0.613	2.451	81.156						
11	0.522	2.086	83.243						
12	0.462	1.849	85.092						
13	0.406	1.623	86.715						
14	0.397	1.587	88.301						
15	0.388	1.553	89.854						
16	0.365	1.461	91.315						
17	0.332	1.329	92.644						
18	0.306	1.223	93.867						
19	0.297	1.187	95.054						
20	0.268	1.073	96.127						
21	0.225	0.901	97.027						
22	0.203	0.814	97.841						
23	0.192	0.767	98.608						
24	0.185	0.738	99.346						
25	0.165	0.659	100.000						

Extraction Method: Principal Component Analysis.

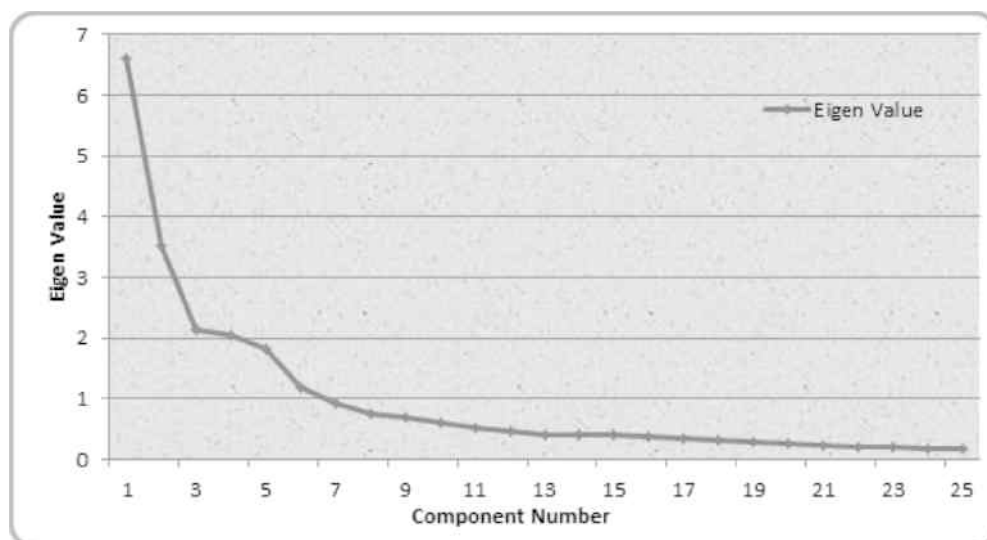


Figure – 1: Screen Plot

The total variance shown in the table - 7, accounted for six components which explains 69.15% of the variability in the 25 variables; So, the original dataset can be reduced by using these six components (Eigen values greater than 1 as shown in the table 7) with only 30.85% loss of information, which is higher than 50% as recommended by Nunnally and

Bernstein (1994). F1 explains maximum variance (26.390%) followed by F2 (14.044%), F3 (8.562%), F4 (8.241%), F5 (7.232%) and F6 (4.680%) respectively. It means that factor analysis has extracted a good amount of variance in the items. Eigen values range from 1.170 to 6.597.

Table - 8
Component Matrix^a

Variables	Factors					
	F1	F2	F3	F4	F5	F6
Less commissions charges as compare to other banks	.328	-.393	.728	.208	.273	.050
Bank employees have the necessary knowledge to serve customers promptly	.232	.052	.402	-.187	.549	-.006
The bank's branch is near shopping centers customers usually visit	.292	-.021	-.370	-.032	.101	.573
The interior design of the premises facilitates the transactions	.126	.505	-.022	.103	.239	-.144
The new products that the bank offers meet customers' needs	.547	.048	.072	-.282	.372	.122
Customers receive prompt service from the bank's employees	.372	.242	.198	-.249	.673	.298
It is a bank that is worth trusting	.282	.343	-.143	.580	.137	.176
The bank's branch is near workplace	.341	.191	.163	-.037	.069	.589
Bank employees know what customers' needs are and how the bank's products can satisfy them	.316	.391	.253	.399	.599	.026
The loan interest rates of the bank are lower than other banks	.302	-.118	.682	.049	-.216	.384
The bank's employees know very well the bank's products	.386	.189	-.314	.030	.515	.282
Employees of the bank have a friendly behavior	.328	.719	-.385	.218	.028	-.336
If there is a problem, the bank is willing to discuss it with the customers	.215	.158	-.263	.514	-.064	-.313
Employees of the bank are well dressed and appear neat	.181	.583	-.257	-.094	-.046	.179
Bank employees do not hesitate to find the time to serve the customers better	.167	-.329	-.031	.002	.525	.109
The bank's branch is near other state buildings and other banks	.326	-.354	.159	.018	.211	.583
The bank offers a wide product variety	.592	-.024	.129	.083	.050	-.077
It informs customers without errors of transactions	.136	-.119	-.107	.536	-.174	-.326
The climate among the bank's employees contributes to receiving better service	.159	.559	.243	-.049	-.318	.005
The bank offers telephone, internet and online services	.546	-.079	.095	-.492	-.028	-.246
The atmosphere inside the bank gives customers a positive impression for the services it offers	.309	.562	-.036	.056	-.119	.121
Customers do not have to visit the bank many times to solve a particular problem	.217	.109	-.063	.755	-.344	-.073
The deposit interest rates of bank are higher than other banks	.354	-.027	.609	.306	-.148	.041
There is a warm friendly atmosphere inside the bank	.026	.641	.020	-.103	-.151	-.274
The bank offers flexible products that meet customers' needs	.506	.182	.010	.025	.142	.255
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization a. Rotation converged in 13 iterations.						

The rotated component matrix reveals six factors (which represent six broad perceptual dimensions of service quality in banking) derived from 25 variables. The components of each factor have been highlighted in Table - 9

Factor 1 incorporates the variables – “Wide product variety”, “Flexible products”, “New product that meets the needs” and “Telephone, internet banking and online services”. Since all these components are related to providing modern products and facilities; so, this factor can be labeled as “Product Innovation”.

Factor 2 incorporates the variables – “Warm friendly atmosphere inside the bank”, “Neat and clean appearing of employees”, “Positive impression inside the bank” and “Interior design of the premises facilities and transactions”, “Climate among the bank employees contributes to receiving better service” and “Friendly behavior of the employees”. Since all these components are related to providing physical facilities and communication materials; so, this factor can be labeled as “Physical Evidence”.

Factor 3 incorporates the variables - “Interest rates lower than the other bank”, “Deposit interest rates higher than the other bank”, and “Less commission charges”. Since all these components deals in the money related terms, this factor can be labeled as “Financial Aspect”.

Factors 4 incorporates the variables - “Error free transactions”, “Problem solving skills”, “Less visits in bank to solve problems”, and “Bank is worth trusting”. Since these components talk about the trusting and error free services; so, this factor can be labeled as “Reliability”.

Factor 5 incorporates the variables - “Employee know very well the bank's products”, “Prompt service from the bank employees”, “Employees have the necessary knowledge to service you promptly”, “Employees do not hesitate to find the time to serve you better”, and “Employees know your needs and can satisfy customers”. Since all these components related to giving customer necessary knowledge and understand their specific needs; hence this factor can be labeled as “Employee Competence”.

Factor 6 incorporates the variables – “Near Branch”, “Bank's branch is near other state buildings and other banks”, and “Bank's branch is near shopping centers usually customer visit”. Since all these factors emphasize on providing convenience to the customers; so, this factor can be categorized as “Convenience”.

The aforesaid factors are presented below (Table - 9) with their corresponding labeled variables along with their loading factors.

Table - 9
Sorted Rotated Factor Loadings with Varimax Rotation

Sr. No.	Sr. No. In Questionnaire	Variables	Factor Loadings	Dimensions
1	5	The new products that my bank offers meet customers' needs	.547	Product Innovation
2	17	The bank offers a wide product variety	.592	
3	20	The bank offers telephone services	.546	
4	25	The bank offers flexible products that meet customers' needs	.506	
5	4	The interior design of the premises facilitates the transactions	.505	Physical Evidence
6	12	Employees of the bank have a friendly behavior	.719	
7	14	Employees of the bank are well dressed and appear neat	.583	
8	19	The climate among the bank's employees contributes to receiving better service	.559	
9	21	The atmosphere inside the bank gives customers a positive impression for the services it offers	.562	
10	24	There is a warm friendly atmosphere inside the bank	.641	

11	1	less commissions charges as compare to other banks	.728	Financial Aspect
12	10	The loan interest rates of bank are higher than other banks	.682	
13	23	The deposit interest rates of bank are lower than other banks	.609	
14	7	It is a bank that is worth trusting	.580	Reliability
15	18	It informs customers without errors of transactions	.514	
16	22	customers do not have to visit your bank many times to solve a particular problem	.536	
17	23	If there is a problem, the bank is willing to discuss it with customers	.755	
18	2	Bank employees have the necessary knowledge to serve customers promptly	.549	Employee Competence
19	6	Receive prompt service from the bank's employees	.673	
20	9	Bank employees know what customers needs are and how the bank's products can satisfy them	.599	
21	11	The bank's employees know very well the bank's products	.515	
22	15	Bank employees do not hesitate to find the time to serve customers better	.525	
23	3	The bank's branch is near shopping centers	.573	Convenience
24	8	The bank's branch is near workplace	.589	
25	16	The bank's branch is near other state buildings and other banks	.583	

Reliability coefficients for Modified SERVQUAL in Banking Service

The reliability of the measures was assessed using the inter-item consistency measure of Cronbach's alpha. The alpha for all the variables of Modified SERVQUAL

(Expectations) in banking service ranged from 0.973 to 0.791 and exceeded the minimum acceptable value of 0.70 (Nunnally, 1978) and thus, the scale is considered to be reliable with the sample. Therefore, no item was deleted. (See table -10)

Table: 10
Reliability Coefficients for Modified SERVQUAL in Banking Service (Expectations)

Variables	Number of Items	Reliability Coefficient
Product Innovation	4	0.926
Physical Evidence	6	0.951
Financial Feature	3	0.973
Reliability	4	0.924
Employee Competence	5	0.791
Convenience	3	0.844
Overall Modified SERVQUAL (Banking Service)	25	0.884

The alpha for all the variables of Modified SERVQUAL (Perceptions) in banking service ranged from 0.949 to 0.772 and exceeded the minimum acceptable value of 0.70

(Nunnally, 1978) and thus, the scale is considered to be reliable with the sample. Therefore, no item was deleted. (See table - 11)

Table: 11
Reliability Coefficients for Modified SERVQUAL in Banking Service (Perceptions)

Variables	Number of Items	Cronbach's Alpha
Product Innovation	4	0.894
Physical Evidence	6	0.859
Financial Feature	3	0.917
Reliability	4	0.924
Employee Competence	5	0.821
Convenience	3	0.949
Overall Modified SERVQUAL (Banking Service)	25	0.772

The above factor analysis and Cronbach's Alpha test of Reliability analysis leads to reject the hypothesis and concluded that "The original Servqual dimensions i.e. Tangibles, Responsiveness Reliability, Assurance, and Empathy was not remain same after applying factor analysis in Indian Context"

Conclusion

The primary focus of this research was to investigate the new dimensions of service quality in Indian context and to restructure the servqual scale. Evidence shows that customers in different industries or countries might evaluate service quality differently. This led the researchers to modify the scale to make it more appropriate for measuring banking service quality in Indian context. Modified Servqual produced six dimensions and found a valid and reliable scale that can be used in India; to the knowledge of the researchers this is the first scale that has been developed in banking service quality for the region (Rajasthan). The first dimension of this modified scale was named as Product Innovation and explained 17.36% variance in modified scale which consists of the 4 items. The second dimension of scale named Physical Evidence explained 13.28% variance and consists of 6 items in it. This dimension is somewhat similar to Tangibles dimension of original Servqual scale. The third dimension was Financial Aspect which explained 12.42% variance and consists of 3 items. The financial aspect is a totally new dimension not similar to any of the original Servqual scale dimension. The fourth dimension was Reliability explained 12.21% variance and consisted of 4 items. This dimension is similar to original Servqual scale. The fifth and sixth dimensions were Competence and Convenience which explain 8.69% and 5.169% variance respectively. In overall terms, we thus find that while the modified Servqual scale is a more convergent and discriminant valid explanation in Indian context of the service construct, possesses greater power to explain variations in the overall service quality scores, and is also a more parsimonious data collection instrument, it is the modified SERVQUAL scale which entails superior diagnostic power to pinpoint areas for managerial intervention.

Generally speaking, this study of modified Servqual is both

important and challenging. Future efforts should continue to advance the understanding of the concept and the means to measure and refine service quality.

References

- Akbaba, A. (2006) 'Measuring service quality in the hotel industry: A study in a business hotel in Turkey', *Hospitality Management*, 25, pp. 170-192.
- Anderson, C and Zeithaml, C P (1984). "Stage of the Product Life Cycle, Business Strategy, and Business Performance," *Academy of Management Journal*, 27 (March), 5-24.
- Anderson, E W, Fornell, C and Lehmann, D R (1994). "Customer Satisfaction, Market Share and Profitability: Findings from Sweden," *Journal of Marketing*, 58(3), 53-66.
- Asunbonteng P., McCleary K.J., Swan J.E. (1996): SERVQUAL revisited: a critical review of service quality, *The journal of services marketing*, Vol. 10, No. 6, pp. 62-81.
- Babakus, E and Boller, G W (1992). "An Empirical Assessment of the Servqual Scale," *Journal of Business Research*, 24(3), 253-68.
- Bebko, C. P. (2000). Service intangibility and its impact on customer expectation of service quality, *Journal of Service Marketing* 14 (1), pp. 9-26.
- Boulding, W; Kalra, A, Staelin, R and Zeithaml, V A (1993). "A Dynamic Process Model of Service Quality: From Expectations to Behavioral Intentions," *Journal of Marketing Research*, 30(February), 7-27.
- Buttle F. (1996): SERVQUAL: review, critique, research agenda, *European journal of marketing*, Vo. 30, No. 1, pp. 8-32.
- Buzzell, R D and Gale, B T (1987). *The PIMS Principles*, New York: The Free Press.
- Carman J.M. (1990): Consumer perceptions of service quality: An assesment of the SERVQUAL dimensions, *Journal of retailing*, Vol. 66, No. 1, pp.

33-53.

- Caro, L. & Carcia, J. (2008) 'Developing a multidimensional and hierarchical service quality model for the travel agency industry', *Tourism Management*, 29, pp. 706-720.
- Caruana A, Ewing M.T, Ramaseshan B. (2000): Assessment of the three-column format SERVQUAL: An experimental approach, *Journal of business research*, No. 49, pp. 57-65.
- Cook L. S., Verma R. (2002): Exploring the linkages between quality system, service quality and performance excellence: Service provider's perspectives, *Quality management journal*, Vol. 9, No. 2, pp. 44-56.
- Cronin J.J., Steven Jr., Taylor A. (1992): Measuring service quality: A reexamination and extension, *Journal of marketing*, Vol. 56, July, pp. 55-68.
- Cronin J.J., Steven Jr., Taylor A. (1994): SERVPERF versus SERVQUAL: Reconciling performance based and perceptions-minus-expectations measurement of service quality, *Journal of marketing*, Vol. 58, January, pp. 125-131.
- Cui, C., Lewis, B. & Park, W. (2003) 'Service quality measurement in the banking sector in south korea', *International Journal of Bank Marketing*, 21 (4), pp. 191-201.
- Cuthbert P.F. (1996): Managing service quality in HE: Is SERVQUAL the answer?, Part 2, Vol. 6, No. 3, pp.31-35.
- Franceschini F., Cignetti M. (1998): Comparing tools for service quality evaluation, *International journal of quality science*, Vol. 3, No. 4, pp. 356-367.
- Garvin, D A (1983). "Quality on the Line," *Harvard Business Review*, 61(September-October), 65-73.
- Gaur, S. & Agrawal, R. (2006) 'Service Quality Measurement in Retail Store Context: A Review of Advances Made Using SERVQUAL and RSQS ', *The Marketing Review*, 6, pp. 317-330.
- Ghobadian A., Speller S., Jones M. (1994): Service quality: concepts and models, *Journal of quality and reliability management*, Vol. 11, No. 9, pp. 43-66.
- Karatepe, O. M., Yavas, U. & Babakus, E. (2005) 'Measuring service quality of banks: Scale development and validation', *Journal of Retailing and Consumer Services*, 12 (5), pp. 373-383.
- Kulašin DŽ, Horvat J. (2004): Using the SERVQUAL for the customer satisfaction measurement process in Technical high school Bugojno, *Proceeding of 8th "TMT 2004"*, 15-19.September, 2004, Neum, BiH.
- Ladhari, R. (2008) 'Alternative measures of service quality: a review', *Managing Service Quality*, 18 (1), pp. 65-86.
- Lee H, Lee Y, Yoo D. (2000): The determinants of perceived service quality and its relations with satisfaction, *Journal of services marketing*, Vol. 14, No. 3, pp. 217-231.
- Marković S., Horvat J. (1999): Customer satisfaction measurement, *Proceedings of second international conference "Economy and ecology in the hospitality function development"*, Bratislava, 1999.
- Marković S., Horvat J. (2002): Higher education quality measurement: A case study in the application of SERVQUAL, *Proceedings of the 16th Conference "Human capital, culture and quality in tourism and hospitality"*, pp. 141-161, 23-26 October, Opatija.
- Normann, R (1984). *Service Management*. New York: Wiley.
- Oliver R.I (1980): A cognitive model of the antecedents and consequences of satisfaction decisions, *Journal of marketing research*, Vol. 17. November, pp. 460-69.
- Oliver, R.L. (1993), "A conceptual model of service quality and service satisfaction: compatible goals, different concepts", in Swartz, T.A., Bowen, D.E. and Brown, S.W. (Eds), *Advances in Services Marketing and Management*, Vol. 2, JAI Press, Greenwich, CT, pp. 65-85.
- Parasuraman A., Zeithaml V.A., Berry L.L. (1985): A conceptual model of service quality and its implications for future research, *Journal of marketing*, Vol. 49, (Fall 1985), pp. 41-50.
- Parasuraman A., Zeithaml V.A., Berry L.L. (1988): SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality, *Journal of retailing*, Vol. 64, No. 1, pp. 12-40.
- Parasuraman A., Zeithaml V.A., Berry L.L. (1994): Alternative scales for measuring service quality: A comparative assessment based on psychometric criteria, *Journal of retailing*, Vol. 70, No. 3, pp. 201-230.
- Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1990), *An Empirical Examination of Relationships in an Extended Service Quality Model*, Marketing Science Institute, Cambridge, MA.

- Parasuraman, A., Berry, L.L. and Zeithaml, V.A. (1991a), "Perceived service quality as a customerbased performance measure: an empirical examination of organizational barriers using an extended service quality model", *Human Resource Management*, Vol. 30 No. 3, Autumn, pp. 335-64.
- Parasuraman, A., Zeithaml, V. and Berry, L.L. (1986), "SERVQUAL: a multiple-item scale for measuring customer perceptions of service quality", Report No. 86-108, Marketing Science Institute, Cambridge, MA.
- Parasuraman, A., Zeithaml, V. and Berry, L.L. (1991b), "Refinement and reassessment of the SERVQUAL scale", *Journal of Retailing*, Vol. 67 No. 4, pp. 420-50.
- Parasuraman, A., Zeithaml, V. and Berry, L.L. (1993), "Research note: more on improving service quality measurement", *Journal of Retailing*, Vol. 69 No. 1, Spring, pp. 140-7.
- Parasuraman, A., Zeithaml, V. and Berry, L.L. (1994), "Reassessment of expectations as a comparison standard in measuring service quality: implications for future research", *Journal of Marketing*, Vol. 58, January, pp. 111-24.
- Phillips, L W, Chang, D R and Buzzell, R D (1983). "Product Quality, Cost Position and Business Performance: A Test of Some Key Hypothesis," *Journal of Marketing*, 47 (Spring), 26-43.
- Prayag, G. (2007) 'Assessing international tourists' perceptions of service quality at Air Mauritius', *International Journal of Quality & Reliability Management*, 24 (5).
- Rust, R T and Oliver, R L (1994). *Service Quality — New Directions in Theory and Practice*, New York: Sage Publications. Shaw, J (1978). *The Quality - Productivity Connection*, New York: Van Nostrand.
- Ryan C., Cessford G. (2003): Developing a visitor satisfaction monitoring methodology: Quality gaps, crowding and some results, *Current issues in tourism*, Vol. 6, No. 6. pp.457-492.
- Saunders, M., Lewis, P. & Thornhill, A. (2007) *Research Methods for Business students*. 4th edn. London: Prentice Hall.
- Siu N. Y. M., Cheung J.T.H. (2001): A measure of retail service quality, *Marketing intelligence and planning*, 19/2, pp. 88-96.
- Thongsamak S. (2001): Service quality: Its measurement and relationship with customer satisfaction, *Journal of service marketing*, 14/1, pp. 9-26.
- Wisniewski M. (2001): Using SERVQUAL to assess customer satisfaction with public sector services, *Managing service quality*, Vol. 11, No. 6, pp. 380-388.