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## **Antecedents of Customer Satisfaction and Retention: Validating Metrics of Mobile Phone Services through SERVPERF**

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### **Abstract:**

*This study sought to develop and test a conceptual model of antecedents of customer satisfaction and customer Retention in mobile service sector.*

*Purpose - The main purpose of this study is to investigate the suitability of the proposed 31-item SERVPERF model in measuring service quality and its association with customer satisfaction and customer retention in mobile service sector.*

*Design/methodology/approach - A self-administered questionnaire was developed and distributed to a sample of 145 customers, selected using a convenience sampling technique, visiting three Nokia Care mobile service centers in Chennai.*

*Findings – The Factor Analysis reduced 31 items to 5 factors (Tangibility, Reliability, Responsiveness, Assurance and Empathy) and it explained 94.794% of variance. The SERVPERF scale applied to the five service quality factors revealed that Assurance is having a highest mean score of SERVPERF score and the mobile service center should concentrate on Tangibility as it has the least SERVPERF mean score. Multiple Linear Regression indicated that service quality is an antecedent and it positively affects customer satisfaction ( $R^2=0.942$ ) and customer retention ( $R^2=0.974$ ). Also, there exists a significant association between customer satisfaction and customer retention ( $R^2=0.965$ ).*

*Originality/value – This study proposes a 31-item SERVPERF Model which is an extension of 22-item SERVPERF Scale by adding extra five variables - Availability of Spares, Accessibility, Transparency, After Service Complaint and Waiting Time which are critical for mobile service sector.*

**Keywords:** *SERVPERF; Customer Satisfaction; Customer Retention; Service Quality Factors;*

### **1. Introduction**

Recently, the mobile service industry has been showing significant signs of growth in India. Customer experience and customer service increasingly become a strategic priority for companies looking to differentiate themselves. Most of them are realizing that some of their consumer interactions (face to face or contact centers) represent more than just costs; they're moments of truth for customers, points in time that significantly impact customer satisfaction and customer retention.

Nokia has opened a specialized service center to provide after sales-service to the customers. Nokia care reliably offers the best possible service to the customers and specializes in servicing software, hardware and also competency development. Nokia Care is the second-ranked provider in Mobile Services globally, serving 600 operators in 150 countries, with close to 120 hardware service transactions per hour (over 1 million transactions per year). For this study, three Nokia Care mobile service centers in Chennai were selected.

Based on the proposed model, the objectives of the present study are restrained to:

1. To investigate the suitability of the proposed model in measuring service quality in mobile service sector.
2. To analyze the association between Service quality factors, customer satisfaction and customer retention.
3. To study Customer Perception on Empathy, Responsiveness, Assurance, Tangibility and Reliability in After-Sales Service of mobile sector using modified SERVPERF model.
4. To determine the factors that affect customer satisfaction and customer retention in the mobile service industry.

### **2. Literature Review**

Gloria K.Q Agyapong (2011) revealed that high level of service quality exerts a strong influence on the overall level of customer satisfaction for Vodafone (Ghana). According to the study, indications of a successful brand building strategy are found when companies provide quality services relative to other companies within the same industry. Ojo (2010) observed that in the telecommunication industry a positive relationship exists between service quality and customer satisfaction. The same relationship is demonstrated by Cook (2008) and Oyeniyi and Abiodun (2008). Fornell et al. (1996) argued that perceived quality, which had been

explained as the served market's evaluation of recent consumption experienced, would have a direct and positive impact on overall customer satisfaction. A study conducted by S. Vijay Anand, M. Selvaraj (2012) analysed the antecedents of Customer satisfaction and found that factors like Responsiveness, Reliability and Empathy are significantly influenced.

In the development of the American Customer Satisfaction Index (ACSI), they concluded that overall customer satisfaction, especially for ASCI, has three antecedents, which are: perceived service quality, perceived value and customer expectation. According to Osman (2004) delivering superior customer value and satisfaction are critical to a firm's competitive advantage.

Service quality can be measured in terms of customer perception, customer expectation, customer satisfaction, and customer attitude (Sachdev & Verma 2004). Ekinici (2003) indicates that the evaluation of service quality leads to customer satisfaction. Rust and Oliver (1994) define satisfaction as the "customer fulfillment response," which is an evaluation as well as an emotion-based response to a service.

K. Ravichandran, B. Tamil Mani, S. Arun Kumar, S. Prabhakaran (2010) in their empirical study found that being responsive means being attentive to the needs of customer in a timely manner and it is critical in banking in order to increase customers' overall satisfaction.

Sang-Lin Han and Seung Baek (2004) stated that the level of service quality has positive impact on customer satisfaction and, the level of customer satisfaction influences the level of customer retention accordingly. The study conducted by Bolton and Drew (1991) also shows that service quality is an antecedent factor of customer satisfaction and retention.

Customer satisfaction also contributes to customer retention (La Barbera and Mazursky, 1983; Zeithaml, Berry, and Parasuraman 1996; Anderson and Sullivan, 1990; Anderson, Fornell, and Lehmann 1994; Cronin and Taylor 1992; Bearden and Teel 1983; Boulding et al. 1993; Oliver and Swan 1989; Oliver, 1980; Rust, 1994; Newman and Werbel, 1973; Fornell and Wernerfelt 1987, 1988).

### 2.1. *SERVPERF (P) Model*

The SERVPERF model developed by Cronin & Taylor, (1992), was derived from the SERVQUAL model by dropping the expectations and measuring service quality perceptions just by evaluating the customer's the overall feeling towards the service. In their study, they identified four important equations:

$SERVQUAL = Performance - Expectations$

$Weighted\ SERVQUAL = importance \times (performance - expectations)$

$SERVPERF = performance$

$Weighted\ SERFPERF = importance \times (performance)$

Implicitly the SERVPERF model assesses customers experience based on the same attributes as the SERVQUAL and conforms more closely on the implications of satisfaction and attitude literature, Cronin et al., (1992 p.64).

### 2.2. *Advantages of using SERVPERF (P) over SERQUAL Model*

Respondents appear to be bored and sometimes confused by the administration of E (expectation) and P (perception) versions of SERVQUAL, and this boredom and confusion will adversely affect data quality [8,10,16]. Siu and Cheung [16] also quoted Wall and Payne's (1973) premise that "when people are asked to indicate the desired level (expectations) of a service and the existing level (perceptions) of the service, there is a psychological constraint that people always tend to rate the former higher than the latter (E>P)." Hence it is empirically proved that the measures of service performance SERVPERF is more effective than SERVQUAL (Cronin and Taylor, 1992; Teas, 1993; Brown et al., 1993; Brady et al., 2002). Weighted SERVPERF scale has been theoretically posited to be superior to weighted SERVQUAL Scale (Bolten and Drew, 1991a in Jain and Gupta, 2004). This empirical study uses SERVPERF scale for measuring the service quality in the mobile service industry.

## 3. **Research Theoretical Model**

Parasuraman et al., (1988) developed a "SERVQUAL" model which initially had ten dimensions and later it got condensed to five dimensions like Tangibility, Reliability, Assurance, Responsiveness and Empathy. Although the five dimensions of SERVQUAL provides a framework of customer expectations and perceptions, the diversity among service industries questions the appropriateness of SERVQUAL model. Hence customization to the specific market-industry context is more pertinent.

This study proposes a modified 31 items SERVQUAL Model in order to ascertain the perceived service quality in mobile service sector. For this the initial 22 items of SERVQUAL model are modified and additional five variables - Availability of Spares, Accessibility, Transparency, After Service Complaint and Waiting Time which are believed to be critical for mobile service sector are added.

An Exploratory Factor Analysis combined the additional five variables them into five dimensions of SERVQUAL Model; tangibles (including Accessibility and Availability of Spares), reliability (After Service Complaint), responsiveness (including waiting time), assurance (including transparency) and empathy.

Hence the proposed model is a summary of 31 items and it aims to find out the overall service quality perceived by customers and also derives the relationship between service quality, customer satisfaction and customer retention.

Tangibility (4 Items)	+	Accessibility (3 Items)	+	Availability of spares (1Item)	=	Proposed Tangibility (8 Items)
Responsiveness (4 Items)	+	Waiting Time (1 Item)			=	Proposed Responsiveness (5 Items)
Assurance (3 Items)	+	Transparency (3 Items)			=	Proposed Assurance (6 Items)
Reliability (6 Items)	+	After Service Complaint (1 Item)			=	Proposed Reliability (7 Items)
Empathy (5 Items)					=	Empathy (5 Items)

Figure 1: 31-item Proposed SERVQUAL Mode

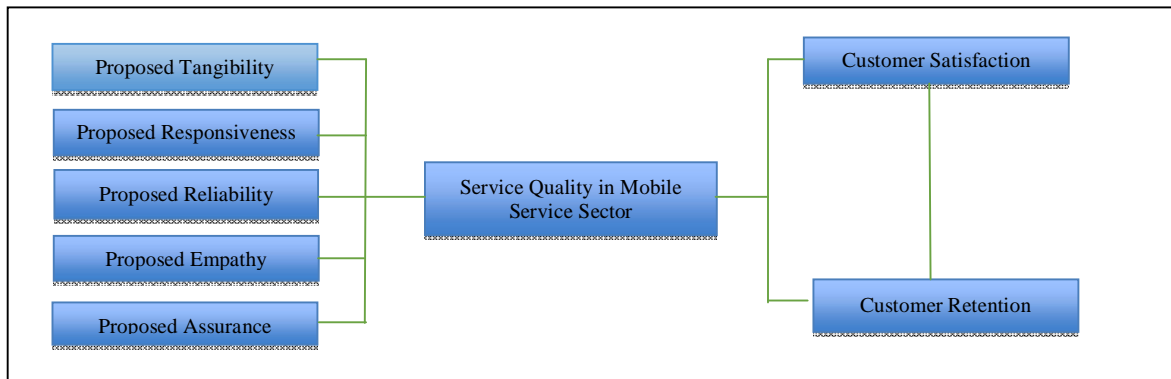


Figure 2: Proposed model: Conceptual frame work diagram for service quality in Mobile Service sector

**4. Research Method**

In order to fulfill the proposed research objectives, empirical research was carried out with the primary data collected through a well-structured questionnaire administered to 145customers visiting 3Nokia Care mobile service centers in Chennai. The sample was chosen based on non-probability sampling method, more specifically convenient sampling method. The questionnaire has five parts. The first part contains items collecting the socio and demographic details of respondents like gender, age, educational qualification occupation and income and the second part contains 31items measuring service quality variables with 4 questions measuring Tangibility,5 questions measuring Reliability,4 questions measuring Responsiveness, 4 questions measuring Assurance, 5 questions measuring Empathy, 3 questions measuring Accessibility, 1 question measuring Availability of spares, 1 question measuring waiting time, 3 questions measuring Transparency and 1 question measuring After Service Complaints. The Third part contains 3 variables for Customer satisfaction; fourth part contains 2 variables for customer Retention. All these variables were measured with 7-point Likert scale ranging from 1- Strongly Disagree to 7- Strongly Agree.

**5. Data Analysis and Results**

Table 1 lists the frequency and percentage for each demographic variable according to the survey categories. From the Table 1, it is seen that the majority of the respondents were male (84%) in the age limit of 26-40 years (42%). Most of the respondents (83%) are graduates working in private firms (30%) with a monthly income above 30000/= rupees (42%).

S. No	Demographic Variables		Number of Respondents	Percentage
1	Age			
	1	18-25 Years	46	32%
	2	26-40 Years	61	42%
	3	41-60 Years	29	20%
	4	Above 60 Years	9	6%
2	Gender			
	1	Male	122	84%
	2	Female	23	16%
3	Education			
	1	1st -5th Standard	4	3%
	2	6th - 12th Standard	9	6%
	3	Graduate	120	83%
	4	Postgraduate	12	8%
4	Occupation			
	1	Business	43	30%
	2	Government Service	10	7%
	3	Private	58	40%
	4	Student	32	22%
	5	Others	2	1%
5	Income			
	1	Below 5000	34	23%
	2	5000-10000	4	3%
	3	10001-30000	45	31%
	4	Above 30000	62	42%

Table 1: Personal profile of respondents (N = 145)

### 5.1. Reliability Analysis

The 'Cronbach Alpha' value is found to be 0.904 which exceeds the reasonable threshold value (0.7) and hence reliability of questionnaire is confirmed (Table 2).

Reliability Statistics	
Cronbach's Alpha	Number of Variables
0.904	40

Table 2: Reliability statistics for the variables of SERVPERF

### 5.2. Measure of Sampling Adequacy

In table 3, it is seen that calculated Kaiser-Meyer-Olkin measure of sampling adequacy is 0.6 which shows that the service quality factors considered for this study explained the variables in Service quality to the extent of 60 percent.

In the Bartlett's test of Sphericity, the Approximate Chi-Square value is Chi-Square=126.952 with a significance value is (0.000) which is less than the level of significance ( $p=0.05$ ), hence it is clear that the factor analysis considered for data reduction is efficient and justifiable and it also reflects the correlations among the variables considered for this study.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.6
Bartlett's Test of Sphericity	Approx. Chi-Square	126.952
	Df	55
	Sig.	0

Table 3: KMO and Bartlett's test

### 5.3. Factor Analysis

To test the dimensionality of the instrument measuring the service quality, scores collected for the 32 items were analyzed using principal component extraction through varimax rotation which converged in 5 iterations. The criterion of meaningful factor loading was set to 0.1. Five Factors which are having Eigen value more than one are considered and it resulted in five-dimensional solution explaining 94.794% of the variance. These factors are labeled as Tangibility, Responsiveness, Reliability, Empathy and Assurance. The most important factors for this study are Assurance and Responsiveness with the Eigen Value 14.215 and 6.657 and having Percentage of variance explained as 44.423 and 20.803 respectively. Next important factors considered are Tangibility and Reliability

with the Eigen value 4.976 and 2.975 having the percentage of variance as 15.551 and 9.298 respectively. The last factor extracted through factor analysis is Empathy with Eigen Value of 1.51 together with 4.719 as percentages of variance.

While Availability of Spares, Accessibility is loaded into the factor Tangibility; Waiting Time is loaded into the factor Responsiveness; Transparency is loaded into the factor Assurance and After Service Complaint is loaded into the factor Reliability. Table 4 concludes that the model is valid and therefore the outcome of the hypothesized effects can be analyzed.

Items	Factor Loadings	Variance	Cumulative Variance
<b>Tangibility</b>		33.711	33.711
Q1	0.965		
Q2	0.965		
Q3	0.965		
Q4	0.965		
Q23	0.912		
Q24	0.934		
Q25	0.934		
Q26	0.912		
<b>Reliability</b>		20.18	53.891
Q5	0.784		
Q6	0.967		
Q7	0.784		
Q8	0.967		
Q9	0.967		
Q10	0.967		
Q31	0.967		
<b>Assurance</b>		15.058	68.949
Q15	0.941		
Q16	0.983		
Q17	0.926		
Q28	0.567		
Q29	0.983		
Q30	0.983		
<b>Empathy</b>		14.179	83.128
Q18	0.942		
Q19	0.942		
Q20	0.942		
Q21	0.942		
Q22	0.942		
<b>Responsiveness</b>		8.983	92.111
Q10	0.987		
Q11	0.987		
Q12	0.987		
Q13	0.987		
Q27	0.868		

Table 4: Factor analysis values for the SERVPERF dimensions

#### 5.4. Analysis of Mean Performance of Service Quality Dimensions (SERVPERF)

The Mean performance of Service Quality Dimensions is analyzed by finding the mean value of the variables of each factor and the result SERVPERF (P) score is listed in Table 5.

In table 5, it is seen out of the five factors, Empathy is having the highest score of SERVPERF (6.50) next to this, Assurance (6.45) then Reliability (6.42) and Responsiveness (6.16). From the assessment of the score, SERVPERF shows the factor Tangibility dimension need to be concentrated and require more resources as it is having lowest performance score (5.24).

S. No	Service Quality Dimensions	SERVPERF (P) Score
1	Tangibility	5.24
2	Reliability	6.42
3	Responsiveness	6.16
4	Assurance	6.45
5	Empathy	6.50

Table 5: Performance of mean score of service quality factors (SERVPERF)

##### 5.5. Antecedents of Customer Satisfaction in Nokia Care, Chennai by Multiple Regression Analysis

- $H_0$ :  $\beta=0$ . Tangibility, Reliability, Responsiveness, Assurance and Empathy are not good predictors of customer satisfaction in mobile service.
- $H_1$ :  $\beta \neq 0$ . Tangibility, Reliability, Responsiveness, Assurance and Empathy are good predictors of customer satisfaction in mobile service.

A multiple regression test is performed to test above hypothesis. R Square value =.942, F =452.278, sig. = .000 indicates that service quality is an antecedent and that it positively affects customer satisfaction (Cronin and Taylor, 1992). The independent variables (Assurance, Responsiveness, Reliability and Empathy) explain 94.2 per cent ( $R^2 = 0.942$ ) of the variance of the dependent variable of customer satisfaction.

However, only the Tangibility variable is not significantly associated with the customer satisfaction ( $\beta = -0.659$ ; t-value = -0.442).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	0.971	0.942	0.94	0.10401	
a. Predictors: (Constant), Assurance, Responsiveness, Tangibility, Reliability, Empathy					
b. Dependent Variable:	Customer Satisfaction				
Dependent Variable	Independent Variable	Standardized Regression Coefficients (b-Beta)	t-Value	Sig. (P-Value)	Null Hypothesis
Customer satisfaction	Constant		-0.252	0.801	
	Tangibility	0.009	0.442	0.659	Accept
	Reliability	0.214	10.121	0.000	Reject
	Responsiveness	-0.064	-2.397	0.018	Reject
	Empathy	-3.685	-15.184	0.000	Reject
	Assurance	4.545	18.819	0.000	Reject

Table 6: Multiple Linear Regression analysis values for Antecedents of Customer satisfaction

##### 5.6. Antecedents of Customer Retention in Nokia Care, Chennai by Multiple Regression Analysis

- $H_0$ :  $\beta=0$ . Tangibility, Reliability, Responsiveness, Assurance and Empathy are not good predictors of Customer Retention in mobile service.
- $H_1$ :  $\beta \neq 0$ . Tangibility, Reliability, Responsiveness, Assurance and Empathy are good predictors of Customer Retention in mobile service.

A multiple regression test is performed to test above hypothesis. R Square value =.987, F =1061.751, sig. = .000 indicates that Assurance, Responsiveness, Reliability, Empathy and Tangibility are good predictors of customers' Retention in mobile service (Table 8).

The significantly influencing service quality factors are Reliability, Assurance, Responsiveness and Empathy.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	0.987	0.974	0.974	0.08898	
a. Predictors: (Constant), Assurance, Responsiveness, Tangibility, Reliability, Empathy					
b. Dependent Variable:	Customer Retention				
Dependent Variable	Independent Variable	Standardized Regression Coefficients (b-Beta)	t-Value	P-Value	Null Hypothesis
Customer Loyalty	Constant		-0.211	0.833	
	Tangibility	-0.012	-0.826	0.41	Accept
	Reliability	0.351	25.015	0.000	Reject
	Responsiveness	0.886	50.087	0	Reject
	Empathy	-0.182	-1.127	0.262	Reject
	Assurance	0.192	1.198	0.233	Reject

Table 7: Multiple Linear Regression analysis values for Antecedents of Customer Retention

### 5.7. Association between the Customer Satisfaction and Customer Retention

- $H_0: \beta=0$ . Customer satisfaction has no significant positive impact on customer loyalty.
- $H_1: \beta \neq 0$ . Customer satisfaction has a significant positive impact on customer loyalty.

A multiple regression test was performed to test above hypothesis. R Square value =.699, sig. = .000 indicates that dimensions of customer satisfaction significantly influences customers' Retention in mobile service.

The argument that customer satisfaction is an antecedent and positively related to retention is supported in the findings as indicated in Table 8. Thus a unit increase in the customer satisfaction increases the Customer Retention to the extent of 69.90 percent since R2 value is 0.699.

Dependent Variable	Independent Variable	Standardized Regression Coefficients (b-Beta)	t-Value	P-Value
Customer Retention	Constant		6.566	0.000
	I am satisfied with the overall service experience	-0.233	-3.665	0.000
	I am satisfied with the service time from service request until the completion of the service	0.395	5.939	0.000
	I am satisfied with the result of the repair service.	0.421	6.287	0.000
	R Square		0.699	
	Adjusted R Square		0.448	
	F Value		38.095	

Table 8: Multiple Linear Regression analysis values for Customer satisfaction and Customer Retention

## 6. Discussion

The multiple linear regression analysis revealed that "tangibility" has no significant impact on customer satisfaction and customer retention in mobile service sector. This is mainly because officility to chat online with mobile service agent which causes the respondents to treat tangibility as atleast important measurement. There are many mobile service centers, which follow "Click Method". The click method enables the customer to use their web/mobile application to create a central repository of all the devices of the customer and the customer can trigger a repair order, track repair history, make online payments, avail tech-support, extend warranty, apply insurance, buy accessories and also trade in old devices. This suggests that mobile service centers must look into upgrading the proficiency of their mobile service agent who interacts with the customer rather than upgrading the interiors of their service stores. Also, the emergence of online technology has led to tangibles losing its importance as a measurement of customer retention. Nokia in UK has introduced "Repair My Nokia", a new online Nokia care service which is gaining popularity in UK. Advancement in technology and innovations enables the customers to get online services at a lower cost than a traditional physical service center.

It is also evident from the analysis that the service quality factors (except Tangibility) Assurance, Responsiveness, Reliability and Empathy are the antecedents of both customer satisfaction and customer retention. Customer satisfaction is also a good predictor and antecedent of customer retention.

The important managerial implication of this study is that mobile service centers should adapt effective strategies like recruitment and training programs in order to ensure that a quality service is delivered to the customers thereby increasing the customer satisfaction which in turn will retain valuable customers.

## 7. References

- i. Ravichandran, K., Tamil Mani, B., Arun Kumar, S. and Prabhakaran S. (2010), "Influence of Service Quality on Customer Satisfaction Application of Servqual Model", *International Journal of Business and Management*, Vol. 5 No. 4, pp. 117-124.
- ii. Gloria K.Q Agyapong. (2011), "The Effect of Service Quality on Customer Satisfaction in the Utility Industry – A Case of Vodafone (Ghana)", *International Journal of Business and Management*, Vol. 6 No. 5, pp. 203-210.
- iii. Shelly Gandhi. and Lakhwinder Singh Kang. "Customer Satisfaction, its antecedents and linkage between Employee Satisfaction and Customer Satisfaction: A Study", *Asian Journal of Business and Management Sciences*, Vol. 1 No. 1, pp. 129-137.
- iv. Radder, L. and Han, X. (2009), "Service Quality On-campus Student Housing: A South African Experience", *International Business & Economics Research Journal*, Vol. 8, No. 11, November, pp. 107-119.
- v. Pal, M. N. and Choudhury, K. (2009), "Exploring the Dimensionality of Service Quality: An Application of Topsis in the Indian Banking Industry", *Asia-Pacific Journal of Operational Research*, Vol. 26, No. 1, pp. 115-133.
- vi. Nadiri, H., Kandampully, J. and Hussain, K. (2009), "Zone of tolerance for banks: a diagnostic model of service quality", *The Service Industries Journal*, Vol. 29, No. 11, November, pp. 1547-1564.
- vii. Vijay Anand, S. and Selvaraj, S. (2012), "The Impact of Service Quality on Customer Satisfaction and Loyalty in Indian Banking Sector: An Empirical Study through SERVPERF", *International Journal of Management and Business Research*, Vol. 2, No. 2, pp. 151-163.
- viii. Sang-Lin Han and SeungBaek. (2004), "Antecedents and Consequences of Service Quality in Online Banking: An Application of the SERVQUAL Instrument", *Advances in Consumer Research*, Vol. 31, pp. 208-214.
- ix. Mohammed Upal. (2008), "Telecommunication Service Gap: Call Center Service Quality Perception and Satisfaction", *Communications of the IBIMA*, Vol. 3, pp. 18-27.
- x. Brady, M. K., Cronin, Jr. J. and Brand, R. R. (2002), "Performance-only Measurement of Service Quality: A Replication and Extension", *Journal of Business Research*, Vol. 55, No.1, pp. 27-31.
- xi. Dharmalingam, S., Ramesh, R. and Kannan, K.V. (2011), "Investigating the Service Quality Dimensions to Customer Satisfaction and Loyalty of New Private Sector Banks in Tamilnadu –An Empirical Study", *Research journal of Social Science and Management*, Vol.4, No.1, pp. 37-46.
- xii. Vanpariya, B. and Ganguly, P. (2010), "SERVQUAL versus SERVPERF: An Assessment from Indian Banking Sector", *TIMS-QUEST*, Vol.1. No.1, pp. 3-13.