

# Impact of Service Quality Dimensions on Customer Satisfaction in Telecom Sector

Debasish Baruah<sup>#1\*</sup>, Thuleswar Nath<sup>#2</sup>, Dimpi Bora<sup>#3</sup>

<sup>1</sup>M.E. Student, <sup>2</sup>Associate Professor, <sup>3</sup>Assistant Professor

<sup>#</sup>Department of Mechanical Engineering, Jorhat Engineering College, Jorhat, Assam, India

**Abstract**— Service quality is the difference between the service expectation of the customer and service received by the customer that is service perception. Various factors influence the customer perception. Also Customer satisfaction is influenced by customer perception. The telecom sector in India is now facing tremendous competition in providing quality service and ensuring customer satisfaction. The objective of this paper is to find the important service quality dimensions affecting customer satisfaction in telecom sector and to find the impact of these dimensions on customer satisfaction. Also this paper aims to find the gender wise perception of the dimensions. A modified questionnaire was prepared based on SERVQUAL instrument. It was found from regression analysis that all the dimensions of service quality were positively and significantly impacted the customer satisfaction. Also, from ANOVA analysis, it was found that for reliability, responsiveness and empathy, there was difference between male and female regarding the perception of these dimensions while for tangible, assurance and network quality, there was no difference. The results would help the service providers in taking major steps to improve the service quality.

**Keywords**— Service quality, Customer satisfaction, Telecom sector, service quality dimensions, SERVQUAL instrument.

## I. INTRODUCTION

In present time, the service sector is one of the most important sectors for almost all the countries and is a key contributor to the GDP [1]. In today's competitive environment, any service organization cannot survive successfully without delivering high quality service. Hence, it has become necessary to analyse the impact of service quality dimensions of customer satisfaction because if customers are satisfied with the service of a company, then it can increase the market share of the company.

Now-a-days, the telecommunication sector is one of the most important service sectors of a country, and delivery high quality service in this sector can lead to growth and long-term development of any country [1]. Also quality in service acts as an antecedent of customer satisfaction [2].

Service quality is different from goods quality because of three features unique to services: intangibility, heterogeneity and inseparability of production and consumption. In absence of ideal measurement method, an appropriate approach for assessing the service quality of a firm is to measure consumers' perceptions of quality [3].

## II. LITERATURE REVIEW

Although telecommunications industry has seen massive change around the world but the impact of service quality dimensions still needs further emphasis in this field [1].

A study conducted by **Aali, A. et al. (2011)** measured the service quality of mobile phone companies operating in Saudi Arabia by using the SERVQUAL instrument. It was found that there was difference in customers' perceptions in almost all the dimensions [1]. On the other hand, **Abdullah, Md. et al. (2011)** identified the service quality gaps in external customer services in the banking services of private commercial banks (PCBs) of Bangladesh. Also, the most important dimensions of service quality that affect customer satisfaction in PCBs had been found out [2]. **Hirmukhe, J. (2012)** investigated the responses of 33 Tehsildars to a SERVQUAL questionnaire and found the gap between expectations and perceptions to provide a way to improve the services [4]. On the other hand, **Khodayari, B. et al. (2011)** conducted a research to measure the perceptions and expectations of perceived quality in higher education considering the case of Islamic Azad University. The results showed a gap between student's perceptions and student's expectations [5]. **Chopra, R. et al. (2014)** investigated the students' perceptions of service quality in higher education, using the service quality (SERVQUAL) instrument. The study has been done on 500 students of 10 institutions pursuing their post-graduation in management and education streams. A significantly negative gap was found in the expectations and perceptions of the service quality [6]. **Chaudhary, A. et al. (2013)** identified the major dimensions of Telecom Service Quality. The TOPSIS and AHP method with trapezoidal fuzzy numbers were used to identify the dimensions [7]. On the other hand, **Bhargav, A. et al. (2014)** investigated the gap between customers' expectations and perceptions in telecom sector. The primary data was collected with the help of a standardized questionnaire of service quality [8]. **Munhurrun, P. R. et al. (2010)** analysed the relationship between customer expectations of service and FLE (front-line employees) perceptions of customer expectations in a major public sector department in Mauritius by using SERVQUAL instrument [9]. **Sivanesan, R. (2013)** studied the subscribers' attitude and perception on BSNL and AIRTEL services in Kanyakumari district. The researcher also identified the various problems faced

by the customers in the district [10]. **Arokiasamy, A. R. A. et al. (2013)** studied the impact of service quality dimensions on customer satisfaction using the SERVQUAL model. It was found that customer satisfaction was impacted by all 5 service quality dimensions [11]. **Katarne, R. et al. (2010)** analysed the service quality level of an automobile dealership in an Indian city. A survey of respondents and owners was conducted and results were not found up to the mark [12]. **Khan, M. A. (2010)** investigated the users' perception of service quality of mobile telephone operators in Pakistan using a questionnaire survey covering SERVQUAL dimensions as well as network quality and convenience as an additional dimensions. Convenience and network quality was found to be relatively most important dimensions [13]. **Gunarathne, U. (2014)** examined the relationship between Services Quality and Customer Satisfaction in hotel industry of Sri Lanka. It was found that courtesy of attendants, comfort in guestroom, cleanliness and environment of hotel have significantly affected the customers' perception [14]. **Chelliah, S. et al. (2010)** measured the customer satisfaction through delivery of quality service in the banking sector in Malaysia. The study also furnished implications for marketers in banking sector for improvement in delivery of service quality [15]. A research conducted by **Dabhade, N. et al. (2013)** studied the impact of quality of service on customer satisfaction of mobile users by considering the case of Airtel and identified the factors that affect quality of services. This paper also analyzed improvements and measures which were followed up by the Airtel to enhance satisfaction level of their customer [16]. **Patidar, G., et al. (2013)** analysed the service quality of government and private banks in Indore by using SERVQUAL model [17].

### III. OBJECTIVE OF PRESENT WORK

The objective of the present work is to find the important service quality dimensions that affect customer satisfaction in telecom sector. Also the second objective is to construct the modified SERVQUAL instrument and validate it and the last objective is to statistically analyse the collected data to test various hypotheses.

### IV. METHODOLOGY

Research methodology is a process of solving the research problem methodically. This paper is based on a survey research work. The survey was done to know the satisfaction level of the respondents and also to get some personal information of the respondents.

#### A. Questionnaire Development

For the present work, 22 items SERVQUAL instrument has been modified to suit the telecom sector. In addition to the original 5 dimensions: tangibles, reliability, responsiveness, assurance and empathy; the network quality dimension was

incorporated due to its importance in telecom sector. Also the total number of items has been reduced to 19 in the questionnaire.

- 1) **Tangibles:** It refers to the appearance of physical facilities, equipment, personnel, documents etc. [3].
- 2) **Reliability:** It is the Ability to deliver the promised service perfectly and within a predefined time period [3].
- 3) **Responsiveness:** Responding to customer as and when required. In other word it requires Good customer care service with willingness to help [3].
- 4) **Assurance:** Knowledge and courtesy of employees and their ability to inspire trust and confidence. This builds a tight and positive bonding between the customer and the service provider [3].
- 5) **Empathy:** Empathy means understanding. The service provider must have a clear-cut understanding that what customer requires. Service providers must be Caring and should provide individual attention to customers [3].
- 6) **Network Quality:** It refers to the strength of the network and call quality [1].

#### B. Sample and Data Collection

Five Mobile Telephone Operators were selected for this study. A convenience sample of 265 mobile phone users has been collected. The survey was administered individually as well as through mail to the respondents. The survey covered the customers of Jorhat district, Assam only.

#### C. Data Analysis

In this study, a 5 point Likert scale has been used. Respondents were asked to rate the items ranging from 1 to 5 according to their experience where 1 indicates much worse than expected and 5 represents much better than expected. The gathered data was processed with the help of statistical software SPSS 16. The processed data was then analyzed to get the research findings.

#### D. Hypotheses for the Present Work

The hypotheses formulated for the present work are –

H1 = Tangible is positively related with customer satisfaction

H2 = Reliability is positively related with customer satisfaction

H3 = Responsiveness is positively related with customer satisfaction

H4 = Assurance is positively related with customer satisfaction

H5 = Empathy is positively related with customer satisfaction

H6 = Network quality is positively related with customer satisfaction

H7 = Perception of the service quality dimensions between male and female is not same

**E. Reliability of the Questionnaire**

To test the reliability of the questionnaire, a pilot test was done covering all the service providers considered for the study. The results of Cronbach’s alpha obtained from the SPSS output showed that Cronbach’s alpha value varied from 0.640 for assurance to 0.894 for network quality and for entire questionnaire, Cronbach’s alpha value was 0.839 which indicated good reliability of the entire questionnaire. Thus, it can be said that questionnaire was reliable for the work. The Cronbach’s alpha values for all dimensions are shown in TABLE I.

TABLE I  
CRONBACH’S ALPHA VALUES FOR DIMENSIONS OF THE QUESTIONNAIRE

Sl. No.	Dimensions	No. of items	Cronbach’s Alpha
1	Tangibles	3	0.736
2	Reliability	3	0.809
3	Responsiveness	4	0.699
4	Assurance	4	0.640
5	Empathy	3	0.789
6	Network quality	2	0.894
7	For all dimensions	19	0.839

**F. Items Pertaining to Service Quality Dimensions**

The 19 items pertaining to all the dimensions obtained from previous studies are shown in TABLE II.

TABLE II  
ITEMS PERTAINING TO SERVICE QUALITY DIMENSIONS

Dimensions	Symbol	Items
Tangibles	T1	The customer service branches are located in suitable places
	T2	The physical facilities are visually appealing
	T3	The employees are well dressed and neat in appearance
Reliability	R1	When the service provider

		promises to do something, it does so
	R2	The service provider provides services at the promised time
	R3	The service charges are reasonable
Responsiveness	RE1	Help line can be easily accessed
	RE2	Employees give quick service
	RE3	Employees have willingness to help
	RE4	The employees respond quickly to customer requests even if busy
Assurance	A1	The employees can be trusted
	A2	Customers feel safe in doing business with the service provider
	A3	The service provider protects the confidentiality of the information of customer
	A4	Employees of the service provider are polite.
Empathy	E1	The employees give individual attention
	E2	The employees know the customer needs
	E3	The service provider has operating hours convenient to all
Network quality	N1	The service provider has a strong and wide range network
	N2	The call quality and data transfer quality is fine

**V. RESULTS & DISCUSSION**

TABLE III  
DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Variables	Frequency	Percentage (%)
<b>Gender</b>		
Male	180	68
Female	85	32
<b>Occupation</b>		
Student	109	41
Government Service	31	12
Private Service	19	7
Businessmen/women	43	16
Housewife	10	4
Other	53	20
<b>Education</b>		
Below matriculation	12	5
Higher secondary	71	27

Diploma	29	11
Bachelor degree	123	46
Master degree	29	10.7
Ph. D	1	0.3
<b>Age group</b>		
Below 20	27	10
21 – 30	139	52
31 – 40	45	17
41 – 50	21	8
Above 50	33	13
<b>Service provider</b>		
AirTel	65	25
Aircel	49	18
Vodafone	77	29
BSNL	46	17
Idea	28	11

TABLE III showed the respondents' personal characteristics. The data showed that 68% respondents

are male and 32% respondents are female. Most of the respondents were students representing 41% followed by other representing 20%, while 16%, 12%, 7% and 4% were businessmen/women, Govt. Service, private service and housewife respectively. The data also revealed that 46% respondents were bachelor degree holder. Also, 52% of the respondents were belonged to the age group 21 – 30. Lastly, most of the respondents were belonging to Vodafone representing 29% followed by AirTel representing 25%.

**A. Results of Regression Analysis for Hypotheses H1 to H6**

TABLE IV showed that in model 1, tangible positively impacted customer satisfaction (CS) as R value of .884 was greater than zero and the model was significant (sig. < 0.05), so the null hypothesis was rejected. Similarly, from the table, it was seen that reliability, responsiveness, assurance, empathy and network quality were positively and significantly impacted the customer satisfaction and hence, the null hypothesis was rejected.

TABLE IV  
SUMMARY OF REGRESSION ANALYSIS OF SERVICE QUALITY DIMENSIONS WITH CUSTOMER SATISFACTION

Models	Unstandardized Coefficient	Standardized coefficient	R	R <sup>2</sup>	Std. Error of estimate	Sig. F test	Assessment of null hypothesis
	B	Beta					
<b>Model 1</b>							
Constant	.199		.884	.781	.440	.000	Reject
Tangible	.840	.884					
<b>Model 2</b>							
Constant	-3.248		.729	.531	.643	.000	Reject
Reliability	1.364	.729					
<b>Model 3</b>							
Constant	.170		.871	.760	.460	.000	Reject
Responsive-ness	.830	.871					
<b>Model 4</b>							
Constant	-2.923		.757	.573	.614	.000	Reject
Assurance	1.445	.757					
<b>Model 5</b>							
Constant	.260		.886	.786	.435	.000	Reject
Empathy	.770	.886					
<b>Model 6</b>							
Constant	-4.852		.800	.640	.563	.000	Reject
Network Quality	1.648	.800					

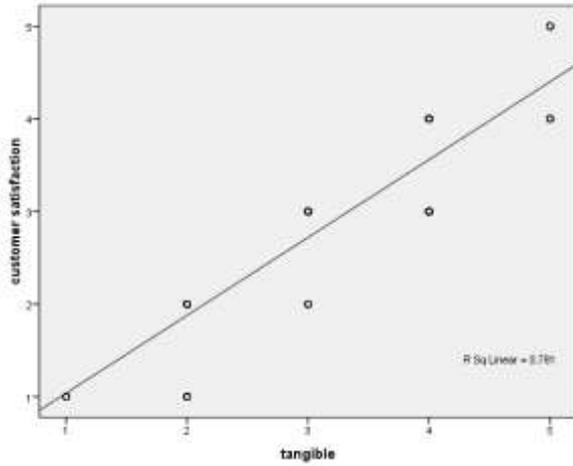


Fig. 1 Relationship between customer satisfaction and tangible

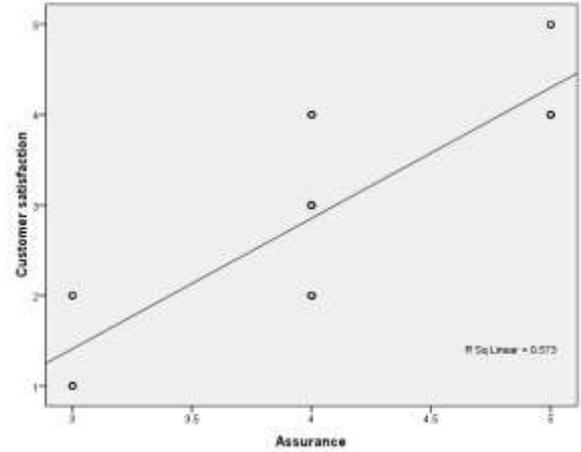


Fig. 4 Relationship between customer satisfaction and assurance

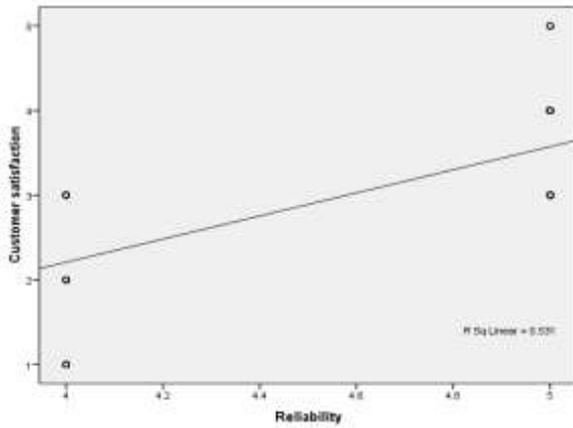


Fig. 2 Relationship between customer satisfaction and reliability

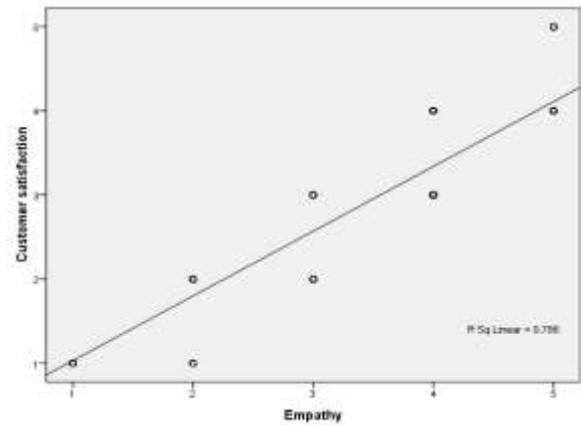


Fig. 5 Relationship between customer satisfaction and empathy

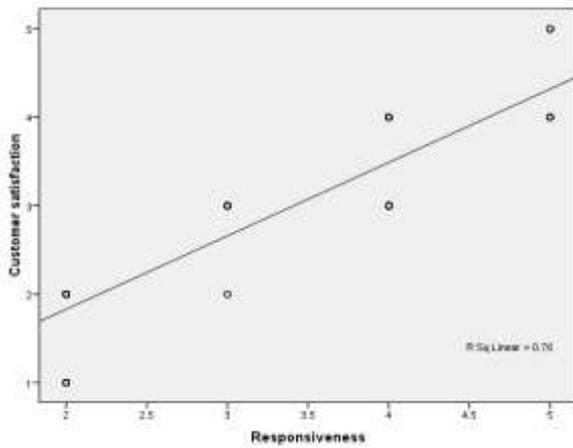


Fig. 3 Relationship between customer satisfaction and responsiveness

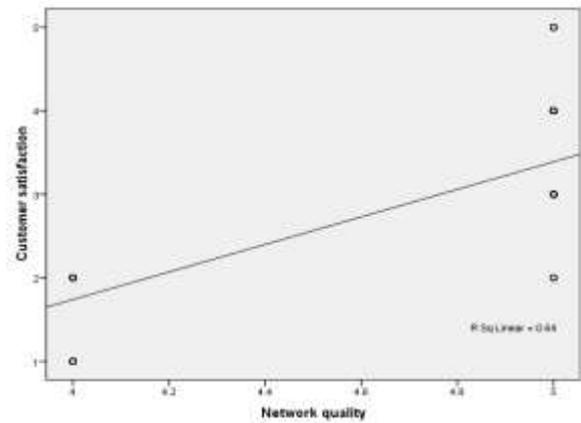


Fig. 6 Relationship between customer satisfaction and network quality

From Fig. 1 to Fig.6, it was seen that all service quality dimensions were linearly related with customer satisfaction. Thus, this study implies that service quality dimensions positively and significantly impacted the customer satisfaction.

**B. Results of ANOVA Analysis for Hypotheses H7**

From F-table, it was found that the value of F is 3.84 at 5% level with degrees of freedom being  $v_1=1$  and  $v_2=263$  [18].

From TABLE V, it was found that for reliability, responsiveness and empathy, the calculated values of F were greater than the tabulated value of 3.84. Also, for these dimensions, the significance values were less than 0.05. Hence for reliability, responsiveness and empathy, the null hypothesis of no difference between male and female regarding the perception of the service quality dimensions was rejected. But for tangible, assurance and network quality; as the calculated values of F were less than the tabulated value of 3.84 and also the significance values were greater than 0.05, the null hypothesis was not rejected.

**VI. CONCLUSION**

The objective of the present work was to analyse the impact of service quality dimensions on customer satisfaction in telecom sector. A five

point Likert scale was used to take responses from respondents according to their experience.

From the reliability test, it was found that Cronbach’s alpha value varied from 0.640 for assurance to 0.894 for network quality and for entire questionnaire, Cronbach’s alpha value was 0.839 which indicated good reliability of the instrument. From the regression analysis, it was found that customer satisfaction was positively and significantly related with all the dimensions. Based on the ANOVA analysis for gender wise perception of service quality dimensions, it was found that for reliability, responsiveness and empathy, there was difference between male and female. But for tangible, assurance and network quality, there was no difference between male and female.

In this study, non probabilistic sampling was done for availability and quickness with which data can be gathered. Also, the outcome of the present work is applicable only to limited numbers of service providers and also in Jorhat district only. The results may vary in other parts of India.

TABLE V  
ANOVA TEST FOR GENDER WISE PERCEPTION OF SERVICE QUALITY DIMENSIONS

Quality dimensions	Mean		F- value	Sig.	Assessment of null hypothesis
	Male	Female			
Tangible	3.31	3.06	3.655	.057	Do not reject
Reliability	4.64	4.25	40.658	.000	Reject
Responsiveness	3.53	2.81	35.015	.000	Reject
Assurance	4.04	4.04	.003	.956	Do not reject
Empathy	3.63	3.04	18.943	.000	Reject
Network quality	4.64	4.72	1.392	.239	Do not reject

**ACKNOWLEDGMENT**

I would like to thank Dr. Primal Bakul Barua, Professor and H.O.D and Dr. Thuleswar Nath, Associate Professor, Department of Mechanical Engineering, Jorhat Engineering College, for their constant support and valuable advice throughout this research work. I would also like to thank Ms. Dimpi Bora, Assistant Professor, Department of Mechanical Engineering, Jorhat Engineering

College, for her valuable suggestion towards the completion of the work. At last, I would like to thank all the respondents for their valuable feedback.

**REFERENCES**

- [1] A. Al-Aali, M. A. Khurshid, N. M. Nasir, and H. A-Aali, “Measuring the service quality of mobile phone companies in Saudi Arabia”, *Administrative Sciences*, vol. 22(2), pp. 43-55, 2011.
- [2] Md. Abdullah, M. M. Rahaman, and A. Rahman, “Measuring service quality using SERVQUAL model: A

- study on private commercial banks in Bangladesh”, *Business Management Dynamics*, vol. 1(1), pp. 1-11, July 2011.
- [3] A. Parasuraman, V.A. Zeithaml, and L. L. Berry, “SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality”, *Journal of Retailing*, vol. 64(1), pp. 12-40, Spring 1988.
- [4] J. Hirmukhe, “Measuring internal customers’ perception on service quality using SERVQUAL in administrative services”, *International Journal of Scientific and Research Publications*, Vol. 2(3), pp. 1-6, March 2012.
- [5] B. Khodayari and F. Khodayari, “Service quality in higher education, Case study: Measuring service quality of Islamic Azad university, Firoozkooh branch”, *Interdisciplinary Journal of Research in Business*, vol. 1(9), pp. 38-46, Sept.-Oct. 2011.
- [6] R. Chopra, M. Chawla, and T. Sharma, “Service quality in higher education: A comparative study of Management and Education institutions”, *NMIMS Management Review*, vol. 24, pp. 59-72, April-May 2014.
- [7] A. Chaudhary and I. Uprety, “Identification of Telecom Service quality dimensions in India with Fuzzy Analysis”, *Global Journal of Management and Business Studies*, Vol. 3(5), pp. 467-474, 2013.
- [8] A. Bhargav and S. V. Kushwah, “Service quality expectations and perceptions of telecom sector in India”, *International Journal of Advancements in Technology*, vol. 5(1), pp. 1-10, March 2014.
- [9] P. R. Munhurrun, S. D. L Bhiwajee, and P. Naidoo, “Service quality in the public service”, *International Journal of Management and Marketing Research*, vol. 3(1), pp. 37-50, 2010.
- [10] R. Sivanesan, “A comparative study on subscribers attitude and perception of BSNL and AIRTEL services in Kanyakumari district”, *International Journal of Commerce, Business and Management*, vol. 2(2), pp. 95-104, April 2013.
- [11] A. R. A. Arokiasamy and A. G. K. Abdullah, “Service quality and customer satisfaction in the cellular telecommunication service provider in Malaysia”, *Journal of Arts, Science and Commerce*, vol. 4(2), pp. 1-9, April 2013.
- [12] R. Katarne, J. Negi, and S. Sharma, “Measurement of service quality of an Automobile Service Centre”, *Proceedings of the International Conference on Industrial Engineering and Operations Management Dhaka, Bangladesh*, pp. 286-291, January 9-10, 2010.
- [13] M. A. Khan, “An empirical assessment of service quality of cellular mobile telephone operators in Pakistan”, *Asian Social Science*, vol. 6(10), pp. 164-177, October 2010.
- [14] U. Gunarathne, “Relationship between service quality and customer satisfaction in Sri Lankan hotel industry”, *International Journal of Scientific and Research Publications*, vol. 4 (11), pp. 1-8, November 2014.
- [15] S. Chelliah, J. Munusamy, and H. W. Mun, “Service quality delivery and its impact on customer satisfaction in the banking sector in Malaysia”, *International Journal of Innovation, Management and Technology*, vol. 1(4), pp. 398-404, October 2010.
- [16] N. Dabhade and R. K. Yadav, “Impact of service quality on customer satisfaction of mobile users – A case study of Airtel”, *International Journal of Innovative Research and Studies*, vol. 2(5), pp. 139-163, May 2013.
- [17] G. Patidar and D. S. Verma, “Comparison of Service Quality between government and Private Banks in Indore”, *International Journal of Engineering Trends and Technology*, vol. 4(7), pp. 3073-3077, July 2013.
- [18] B. L. Agarwal, *Basic Statistics*, Wiley Eastern Limited, New Delhi, 1988, pp.713.