Measuring Service Quality in Cellular Phone Service

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Abstract

The cellular phone industry is one of India's rapidly growing industries. The industry has undergone a number of changes over the years. Industry wide, pre-paid customers make up 95%-96% of around 900 million customer base of all mobile phone companies in India. The present paper focuses measuring the service quality of cellular phone service in UP-West in India. A sample of 1494 respondents from different cities/towns of UP west was selected through non-probabilistic convenience sampling. Exploratory factor analysis was conducted and it was found that Affordability, Assurance, Reliability, perceived network quality, convenience and Empathy are factors of service quality. So based on these conclusions service providers should concentrated on these factors for delivering good perceived service quality.

Key Word: Cellular phone service/mobile telecommunication

Introduction

Indian Mobile Phone Industry

Economic theory suggests that there is a positive correlation between infrastructure and economic development. Telecommunications is one of the most important types of infrastructure. Communication is said to be the life-blood of economic activity. Systems of communication assume critical importance when globalization and contraction of geographic distances have become the order of the day. International studies indicate that for every one percent increase in the tele-density (penetration rate of telecommunications) of a country, there is a corresponding increase of three percent in the gross domestic product of the country

The cellular phone industry is one of India's rapidly growing industries. The industry has undergone a number of changes over the years. The National Telecom Policy 1999 was an important landmark in the development of the cellular telecom industry in India; the tariff rationalization and policy regulation introduced in the Policy helped the industry grow at the pace it did. The years 2001 and 2002 saw an increase in level of competition in the industry with more operators being given licenses, and fixed line providers also entering the mobile market. In 2003, Telecom Regulatory Authority of India (TRAI) announced regulation of inter connect user charges to resolve conflicts between cellular operators and fixed line operators.

The major players providing basic services are Bharti Airtel, Vodafone, Idea, Reliance, Tata, Videocon, Uninor, Aircel, BSNL and Sistema (MTS).

Industry wide, pre-paid customers make up 95%-96% of around 900 million customer base of all mobile phone companies in India. (http://articles.economictimes.indiatimes.com/2013-10-11/news/42942349_1_customer-base-bharti-airtel-plan)

Literature review

The subject of service quality is very vast in context of definitions, measurements and models. Researchers have explored the subject with different perspectives and methodologies. In the past few years, there have been considerable studies on different aspects of service quality leading to a sound conceptual base.

Gro¨nroos, 1984, suggested that managing perceived service quality means that the firm has to match the expected service and perceived service to each other so that consumer satisfaction is achieved. The author identified three components of service quality, namely: technical quality; functional quality and image.

Parasuraman et al., 1985 proposed that service quality is a function of the differences between expectation and performance along the quality dimensions. They developed a service quality model (Figure 2) based on gap analysis. The various gaps visualized in the model are:

Gap 1: Difference between consumers' expectation and management's perceptions of those expectations, i.e. not knowing, what consumers expect.

Gap 2: Difference between management's perceptions of consumer's expectations and service quality specifications,, i.e. improper service-quality standards.

Gap 3: Difference between service quality specifications and service actually delivered i.e. the service performance gap.

Gap 4: Difference between service delivery and the communications to consumers about service delivery, i.e. whether promises match delivery.

Gap 5: Difference between consumer's expectation and perceived service. This gap depends on size and direction of the four gaps associated with the delivery of service quality on the marketer's side.

Cronin and Taylor, 1992) The authors investigated the conceptualization and measurement of service quality and its relationship with consumer satisfaction and purchase intentions. They compared computed difference scores with perception to conclude that perceptions only are better predictor of service quality.

Table 2: Select Service Quality Dimensions

Authors (Year)	Parasuraman, Zeithaml and Berry (1988)	Lehtinen and Lehtinen (1991)	Rosen and Karwan (1994)	Johnson, Tsiros and Lancioni (1995)	Siu and Cheung (2001)	Alzola and Robaina (2005)
Application areas	Telephone co., securities brokerage, insurance co., banks and repair and maintenance	Lunch restaurants, Disco, Pub type restaurants	Teaching, restaurant, bookstore and health care	Bank Customers UK	Service quality delivery of a department store chain	Electronic commerce B2C
Dimensions	Reliability	Physical quality	Reliability	Input quality	Personal interaction	Reliability
	Responsiveness	Corporate quality	Responsiveness	Process quality	Policy	Design
	Assurance	Interactive quality	Tangibles	Output quality	Physical appearance	Guarantee
	Empathy	Process quality	Access		Promises	Empathy
	Tangibles	Output quality	Knowing the customer		Problem solving	Security
			Assurance		Convenience	

Although service quality literature is found to be rich in empirical studies on different service sectors, service quality modeling in cellular mobile services needs to be investigated more. Universal dimensions need to be modified as per the service in consideration (Seth, Momaya and Gupta, 2006). Thus, dimensional issue of service quality needs re-examination in the context of cellular mobile communication. Parasuraman, Zeithaml and Berry, 1985, 1988; Carman, 1990 suggest that service quality is an abstract concept, difficult to define and measure.

Anita Seth, K Momaya and Gupta, concluded that SERVQUAL is not a generic scale. In case of mobile, service quality needs to be measured using a seven dimensional structure (convenience and customer perceived network quality to be added). The study

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showed that responsiveness is the most important dimension, followed by reliability, customer perceived network quality, assurance, convenience, empathy and tangibles.

Ranganathan et. al (2006) examined the switching behavior of mobile users who are not under any contractual obligations to stay with a provider found that there is significant associations between mobile users' service usage, service bundling and their switching behavior. Support was also found for the influence of age and gender on mobile user.

Annu Ristola et. al (2005) analyzed how the mobile devices and the initial trial time used effect the initial mobile service usage experience and how this experience affects the likelihood of continuous usage and argued that the duration of the trial does not effect consumers' perceptions about mobile services when first trying them out, but familiarization of the device used has an impact on experience.

Kim, Park and Jeong 2004 suggested that service quality has positive impact on customer satisfaction. Call quality is the most important issue that impacts customer satisfaction for mobile services.

Ranaweera and Neely, 2003 used modified SERVPERF to find that in fixed telephony services, price perception and indifference moderated the relationship between service quality and customer retention

Johnson and Sirikit, 2002, did research in both fixed and cellular mobile service and SERVQUAL performed reliably in the telecommunication service setting.

Van Der Wal, Pampallis and Bond, 2002, did study in South Africa cellular mobile services and focused on customer's perception of service quality using SERVQUAL.

Wang and LO, 2002, after their research in cellular mobile service in China found out that network quality and empathy are the most important drivers of overall service quality.

Leisen and Vance, 2001, conducted study in field of fixed line telephony service and found SERVQUAL instrument to be best fitting model of service quality in US and Germany.

Ahava, H. Myllymaki, K. Nenvo, Y. Ronkainen, J. Nokia Mobile Phones (1995) presented an overview of wireless telephony. The key points relating to different markets are analyzed: their size, customer needs, coming changes etc. Next the evolution of analogue and digital cellular systems is described and also the different skills that are needed to create a multinational cellular service are listed. The conclusion is that while wireless telephony is becoming a real consumer market, the emphasis in this business is changing from complex technical issues to issues more closely related to quality and versatility of services.

The last decade has shown that mobile phones have attained a stable position in the consumer's everyday life. Personal communication has broken through to every-day life already, but mobile services are not used extensively with the exception of some services

(SMS, logos, ring tones) (See e.g. Durlacher Report 2001). It seems that today communication services dominate the telco market (person-to-person messaging and other SMS-based services such as mobile chat), but other types of revenue sources, mainly entertainment and to a lesser extent information services, will start to add to the revenues. In anticipation of this development, the Durlacher's UMTS report found four key differentiators for mobile applications that could be elemental in providing significant value for the end-customer; **localization** that enables businesses to push locally tailored

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information to users thus increasing the value for the consumer, **personalization** which enables better tailoring of services according to individuals needs and preferences, **immediacy** which is important since the devices are always with the consumers and of course the **availability** of the services, needed for the consumers to adapt them.

Objectives of Study:

The primary objective of this study is:

- To identify key constructs/dimensions of service quality of prepaid cellular service

- To Validate/Develop service quality model of prepaid service provider

An exploratory qualitative study was done to know the main factors of service quality as per consumers, mobile phone selling retailers, Industry people. The interactions were directed at knowing the key factors affecting customer's perception of service quality in cellular mobile services

Study of past researches and detailed interactions provided the insights about main factors and dimensions of service quality. A total of eight dimensions were observed.

The instrument was developed from the inferences obtained through the review of the subject and from exploratory interviews. An instrument with 32 scales was developed with inspiration from SERVQUAL (Parasuraman et al., 1988). The scales have been proposed based on four of main dimensions suggested by Parsuraman Responsiveness, Reliability, Assurance and Empathy. Factors of perceived network quality, convenience, pricing and physical evidence were added based on literature review, consumer interactions and discussions with Industry people. As the study was conducted for prepaid customers who may have limited or no physical contact with the service provider, it came out during interaction that in the current context dimension of tangibility should be replaced with Physical evidence of the service provider.

 All the closed-ended questions were designed to generate responses on a five point Likert scale to measure the perception of service quality indicated as -1 strongly disagree, -2 disagree, 0 neither or nor, +1 agree and +2 strongly agree. Cui, Lewis, and Park, (2003) in a study measuring service quality using SERVQUAL with five dimensions have achieved successful results using likert scale with seven point scale.

The instrument was divided into three parts. The first part consisted demographic questions (Gender and Age) and customer profiling (Household income, education, occupation, primary cellular connection, monthly expense). The second part was designed to understand factors considered for buying a new connection. Based on literature review, consumer interviews and discussion with industry people, this part of the questionnaire was constructed with seven items relating to pricing, four items relating to perceived network quality, three items of convenience, three items of empathy, three items of responsiveness, four items of reliability, six items of assurance and two items of physical evidence.The third part was designed to examine the respondents' perceptions of service quality actually provided by their service providers.

 In the present study, constructs were measured based on customer's perceptions only. Each of these items was evaluated on a five-point Likert scale, ranging from 1: "strongly disagree" to 5: "strongly agree".

A pilot study was done for improving the questionnaire. Comments were taken from different strata of customers and questionnaire was modified eight times. The questionnaire was pre tested

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Methodology and Data Collection

For the purpose of the study primary data was collected from the different cities, towns of West UP with the help of a well-drafted Questionnaire in English and Hindi Language. Non-probabilistic convenience sampling was followed, as it is appropriate for exploratory studies. Further convenience sampling method was used for two reasons firstly respondents are selected because they happen to be in right place at the right time and secondly, convenience sampling technique is not recommended for descriptive or causal research but they can be in exploratory research for generating ideas (Malhotra, 2005). According to the chosen methodological research approach, the quantitative data was analyzed by using ***Factor Analysis*** by using SPSS Software.

Hypothesis Formulated

For the fulfillment of the study following hypothesis have been formulated:

H_1: In terms of service quality the rating given by the respondents are significantly different from each other.

H_2: There is significant association between cellular service users and demography of the respondent i.e. age gender income and occupation.

H_3: The generic dimensions of service quality is Reliability

H_4: The generic dimensions of service quality is Assurance

H_5: The generic dimensions of service quality is Tangibles

H_6: The generic dimensions of service quality is Empathy

H_7: The generic dimensions of service quality is Responsiveness

H8: The generic dimensions of service quality is perceived network quality

H9: The generic dimensions of service quality is Affordability/pricing

H10: The generic dimensions of service quality is Physical evidence

Data Collection

The questionnaire was filled by prepaid cellular mobile services customers of west UP, during March-October 2013. Convenience sampling method was used to collect the data from customers. Out of 2075 questionnaires, 1687 were received, 1494 questionnaires were found to be satisfactorily filled.

The demographic characteristics of the customers are summarized in below Table. Most of the respondents (about 76.8%) were male. Respondents in the age group 31-40 yrs (42.6%) and 21-30 yrs (28.2%) were the major contributors. 73% respondents are Graduate or more. 12.7% of the respondents were students.

Demographic Characteristics		
No.	Respondent's Characteristics	% of Respondents
I. Age group		
	18-20	12.6
	21-30	28.2
	31-40	42.6
	41-50	9.8
	>50	6.8
II.	Monthly expenditure per month on mobile services	
	Up to Rs. 100	21
	Rs.101-200	30.7
	Rs.201-500	28
	>Rs.501	20.3
III.	Education	
	Higher Secondary or lower	27
	Graduate	39
	Masters and above	24.1
	Others	9.9
IV.	Occupation	
	Service	40.6
	Business	26.1
	Student	12.7
	Others	20.6
v Gender	Male	76.8
	Female	23.2

Analysis:

Data was analyzed with validated tools and procedures. The factor analysis of the collected data was conducted t.. The results of the analysis are described in the following.

Reliability Test: Cronbach's Alpha

Reliability is the extent to which a list of scale items would produce consistent results if data collection were repeated (Malhotra, 2007) and is assessed by determining the proportion of systematic variation in a scale. Calculating the Cronbach Alpha coefficient of a scale is the most commonly practiced indicator of internal consistency (Pallant, 2007), with the ideal Cronbach Alpha co-efficient being over 0.7 (Hair et al. 2010). A value of below 0.7 is considered to indicate unsatisfactory internal consistency reliability (Malhotra, 2007). Cronbach's Alpha is used in this research to assess internal consistency reliability of the 32 scale items of the questionnaire.

Case Processing Summary

		N	%
Cases	Valid	1494	100.0
	Excluded[a]	0	.0
	Total	1494	100.0

a. List wise deletion based on all variables in the procedure.

Reliability Statistics

Reliability Statistics

Cronbach's Alpha	N of Items
.948	32

The Cronbach Alpha coefficient of the 'Service quality Perceptions towards service quality' scale of the research, as displayed in Table above is 0.948. Since this figure is above the necessary 0.7 Cronbach Alpha ideal, the scale items used have a satisfactory internal consistency and can be deemed reliable statistically.

Data Factorability

The first data analysis in the Exploratory Factor Analysis process (Pallant, 2007) is the assessment of its suitability (factorability). Two statistical measures: Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) have been used to investigate the factorability of the data.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.948
Bartlett's Test of Sphericity	Approx. Chi-Square	14583.810
	df	496
	Sig.	.000

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) for individual variance was studied. It found sufficient correlation between all the variables.

- To test the sampling adequacy, Kaiser-Meyer-Olkin MSA was calculated which is found to be 0.948. It is indicated that that the sample is good enough for sampling.

- The overall significance of correlation matrices is tested with Barlett Test of Sphericity, provided support for the validity of the factor analysis of the data set.

After the standards indicate that data is suitable for factor analysis, Principal Components Analysis (PCA) was employed for extracting the data, which lets determining the factor underlying the relationship between numbers of variables. In order to 'extract' factors from the data, components that have an eigenvalue of 1 or more have to be identified from the Total Variance Explained extracted using Principle Component Analysis (Pallant, 2007). This determines the number of factors extracted from the data (Kaiser, 1960). Comrey (1973) suggested that anything above 0.44 could be considered salient, with increased loading becoming more vital in determining the factor. All the loadings in the research are positive.

There are only six factors, each having Eigen value exceeding 1 for perceptions towards service quality. The Eigen values for six factors were 4.388, 4.113, 3.693, 3.460, 2.602 and 2.520. The percentage of total variance is used as an index to determine how well the total factor solution accounts for what the variables together represent. The index for present solution accounts for 64.923% of the total variations for perception of Service quality'. It is pretty good extraction as it can be economize on the number of factors (from 32 it has reduced to 6 factors) while we have lost 35.08% information content for factors for service quality. The percentage of variance explained by factor one to six for factors for service quality is 13.711, 12.853, 11.540, 10.811, 8.132, and 7.876. It means 64.9% of the variance of variable 1 is being captured by the six extracted factors together. The proportion of variance in any one of the original variables, which is being captured by the extracted factor, is known as communality (Nargundkar, 2002).

Interpretation and Factor Names

Each factor needs to be assigned a name or label to characterise it and aid its interpretation (Tabachnick & Fidell, 2007). Each of the service quality perception factors that have been extracted via Principle Component Analysis in the EFA process of this research data is displayed. The names allocated to each factor are a result of the interpretation of its service quality perceptions factor scale items and are discussed as following:-

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Factor 1- Affordability

The first factor with the Total Variance Explained value, 13.711% has been interpreted as affordability of the service due to its inclusion of scale items identified. Table below displays the scale items that load onto the Factor 1.

Items	Factor Loading
3G services are available at reasonable rates	.733
The roaming charges are reasonable	.731
My cellular service provider offers a variety of pricing schemes on its services	.683
I have full freedom to choose the price scheme which suits my requirements	.622
The SMS rates are reasonable.	.607
The call rates are reasonable.	.595
The price of procuring the new connection is reasonable.	.541
Customer care is willing to help me	.531

The first factor with the highest Total Variance Explained value, 13.711%, has been interpreted as *Affordability* due to its inclusion of scale items identified

Factor 2- Assurance

The second factor with the Total Variance Explained value, 12.853 %, has been interpreted as *Assurance due* to its inclusion of scale items identified and adapted from academic literature surrounding service quality perceptions relating to Assurance.

Assurance	Knowledge and courtesy of employees	Parasuraman, Zeithaml and Berry,
	and their abilities to inspire trust and	1988; Rosen and Karwan,1994
	Confidence.	

Table below displays the scale items that load onto the Factor 2.

Items	Factor Loading
Information brochures have complete information about the service being provided.	.722
I find my cellular service provider offering an overall good quality of service.	.715
I get quality service in return of the price I pay for my mobile service	.713
Customer care employees have adequate information to respond to my queries	.712
My cellular service provider is well reputed in the market	.657
The customer care is courteous in their customer handling	.551

Factor 3- Reliability

The third factor with the Total Variance Explained value, 11.540%, has been interpreted as *Reliability due* to its inclusion of scale items identified and adapted from academic literature surrounding service quality perceptions relating to reliability.

Reliability	Ability to perform the service accurately	Parasuraman, Zeithaml and Berry,
	and dependably, as promised.	1988; Rosen and Karwan, 1994

Table below displays the scale items that load onto the Factor 3.

Items	Factor Loading
The billing problem if any is resolved speedily	.764
Billing is accurately done most of the times	.762
The Value added services offered by my cellular service provider are easy to use	.644
Signage of the service provider (Hoardings, posters, glow boards, etc.) is easily visible	.628
Value added services are not initiated without my permission	.580
Information brochures associated with services are easily available at shops	.543

Factor 4 – Perceived network Quality

The fourth factor with the total Variance explained value, 10. 811% has been interpreted as perceived Network quality due to its inclusion of scale items identified and adapted from academic literature surrounding network quality. Table below displays the scale items that load onto the Factor 4.

Items	Factor Loading
Voice clarity of the network is good	.800
Call gets connected in the first attempt most of times	.749
There are no call drops while travelling	.706
The connection has wide network coverage	.623
Customer care attends my call promptly	.588

Factor 5 – Convenience

The fifth factor with the Total Variance Explained value, 8.132% has been interpreted as convenience due to its inclusion of scale items identified. Table below displays the scale items that load onto the Factor 5.

Items	Factor Loading
Information about suitable plans is easily available	.760
Facility of recharge is easily available at neighborhood shops	.717
New connection is available with simple application formalities	.610

Factor 6 – Empathy

The sixth factor with the Total Variance Explained value, 7.876% has been interpreted as Empathy, due to its inclusion of scale items identified.

Empathy	Ability of the service provider to provide	Parasuraman, Zeithaml and Berry,
	a caring and personalized attention to	1988; Saleh and Ryan, 1991
	each customer.	

Table below displays the scale items that load onto the Factor 6

Items	Factor Loading
Customer care is able to understand my specific problems	.783
A variety of Value added services are offered by my cellular service provider	.670
Customer care listens patiently to my problems	.662

Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.948
Bartlett's Test of Sphericity	Approx. Chi-Square	14583.810
	df	496
	Sig.	.000

Communalities

	Initial
C1_The_facility_of_recharge_is_easily_available_at_neighbourhood_sh	1.000
C2_Information_about_suitable_plans_is_easily_available	1.000
C3_New_connection_is_available_with_simple_application_formalities	1.000
E1_A_variety_of_value_added_services_are_offered_by_my_cellular_ser	1.000
E3_Customer_care_is_able_to_understand_my_specific_problems	1.000
E2_Customer_care_listens_patiently_to_my_problems	1.000
R1_Customer_care_attends_my_call_promptly	1.000
N1_Call_gets_connected_in_the_first_attempt_most_of_times	1.000
N2_Voice_clarity_of_the_network_is_good	1.000
N3_There_are_no_call_drops_while_travelling	1.000
N4_The_connection_has_wide_network_coverage	1.000
P1_Price_of_procuring_the_new_connection_is_reasonable_	1.000
P2_The_call_rates_of_the_service_are_reasonable__	1.000
P3_The_SMS_rates_are_reasonable	1.000
P4_The_roamng_charges_are_reasonable	1.000
P5_3G_services_area_available_at_reasonable_rates	1.000
P6_My_cellular_service_provider_offers_a_variety_of_pricing_schemes	1.000
P7_I_have_full_freedom_to_choose_the_price_scheme_which_suites_my_r	1.000
R2_Customer_care_is_willing_to_help_me	1.000
R2_Customer_care_is_willing_to_help_me	1.000
L1_Value_added_services_are_not_initiated_without_my_permission	1.000
L2_The_value_added_services_offered_by_my_cellular_service_provider	1.000
L3_Billing_is_accurately_done_most_of_the_times	1.000
L4_The_billing_problem_if_any_is_resolved_speedily	1.000
H2_Signages_of_the_service_provider_hoardingspostersglow_sign_bo	1.000
H1_Information_brochures_associated_with_services_are_easily_avai	1.000
A3_The_customer_care_is_courteous_in_their_customer_handling	1.000
A4_I_find_my_cellular_service_provider_offering_overall_good_qualit	1.000
A5_I_get_quality_service_in_return_of_the_price_I_pay_for_my_mobi	1.000
A6_Information_brochures_have_complete_information_about_the_servic	1.000
A2_Customer_care_employees_have_adequate_information_to_respond_to_	1.000
A1_My_cellular_service_provider_is_well_reputed_in_the_market	1.000

Extraction Method: Principal Component Analysis.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.261	41.440	41.440	4.388	13.711	13.711
2	2.305	7.202	48.643	4.113	12.853	26.564
3	1.566	4.894	53.537	3.693	11.540	38.104
4	1.445	4.515	58.052	3.460	10.811	48.915
5	1.148	3.588	61.640	2.602	8.132	57.047
6	1.051	3.283	64.923	2.520	7.876	64.923
7	.917	2.865	67.789			
8	.847	2.648	70.437			
9	.804	2.512	72.949			
10	.626	1.955	74.904			
11	.605	1.890	76.794			
12	.574	1.795	78.589			
13	.543	1.697	80.286			
14	.483	1.508	81.794			
15	.466	1.455	83.249			
dimension0 16	.452	1.414	84.663			
17	.442	1.381	86.044			
18	.406	1.270	87.314			
19	.398	1.245	88.559			
20	.373	1.166	89.725			
21	.358	1.118	90.843			
22	.339	1.060	91.902			
23	.322	1.006	92.908			
24	.303	.946	93.855			
25	.285	.890	94.744			
26	.278	.869	95.613			
27	.272	.851	96.465			
28	.271	.846	97.310			
29	.248	.776	98.087			
30	.232	.726	98.813			
31	.206	.644	99.457			
32	.174	.543	100.000			

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
C1_The_facility_of_recharge_is_easily_available_at_neighbourhood_sh					.717	
C2_Information_about_suitable_plans_is_easily_available					.760	
C3_New_connection_is_available_with_simple_application_formalities					.610	
E1_A_variety_of_value_added_services_are_offered_by_my_cellular_ser						.670
E3_Customer_care_is_able_to_understand_my_specific_problems						.783
E2_Customer_care_listens_patiently_to_my_problems						.662
R1_Customer_care_attends_my_call_promptly				.588		
N1_Call_gets_connected_in_the_first_attempt_most_of_times				.749		
N2_Voice_clarity_of_the_network_is_good				.800		
N3_There_are_no_call_drops_while_travelling				.706		
N4_The_connection_has_wide_network_coverage				.623		
P1_Price_of_procuring_the_new_connection_is_reasonable_	.541					
P2_The_call_rates_of_the_service_are_reasonable__	.595					

P3_The_SMS_rates_are_r easonable	.607						
P4_The_roamng_charges _are_reasonable	.731						
P5_3G_services_area_av ailable_at_reasonable_ra tes	.733						
P6_My_cellular_service_ provider_offers_a_variety _of_pricing_schemes	.683						
P7_I_have_full_freedom_ to_choose_the_price_sch eme_which_suites_my_r	.622						
R2_Customer_care_is_wi lling_to_help_me	.531						
R2_Customer_care_is_wi lling_to_help_me							
L1_Value_added_service s_are_not_initiated_with out_my_permission			.580				
L2_The_value_added_ser vices_offered_by_my_cell ular_service_provider			.644				
L3_Billing_is_accurately _done_most_of_the_time s			.762				
L4_The_billing_problem_ if_any_is_resolved_speed ily			.764				
H2_Signages_of_the_serv ice_provider_hoardingsp ostersglow_sign_bo			.628				
H1_Information_brochur es_associated_with_servi ces_are_easily_avai			.543				
A3_The_customer_care_i s_courteous_in_their_cu stomer_handling		.551					
A4_I_find_my_cellular_se rvice_provider_offering_o verall_good_qualit		.715					

A5_I_get_quality_service_in_return_of_the_price_I_pay_for_my_mobi	.713					
A6_Information_brochures_have_complete_information_about_the_servic	.722					
A2_Customer_care_employees_have_adequate_information_to_respond_to_	.712					
A1_My_cellular_service_provider_is_well_reputed_in_the_market	.657					

Extraction Method: Principal Component Analysis.

 Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Component Transformation Matrix

Component	1	2	3	4	5	6
1	.494	.465	.426	.400	.335	.293
2	.401	-.549	-.539	.351	.164	.313
dimension0 3	-.115	-.081	.062	-.645	.446	.601
4	-.571	-.182	.282	.456	-.271	.528
5	.455	-.490	.560	-.244	-.424	.016
6	.222	.449	-.363	-.183	-.639	.418

Extraction Method: Principal Component Analysis.

 Rotation Method: Varimax with Kaiser Normalization.

Conclusion and Implications:

A review of literature revealed that previous studies on measurement of customer perceived service quality were primarily focused on service delivery aspects while the importance of technical quality in cellular mobile services have been emphasized by various researchers (Johnson and Sirikit, 2002; Wang and Lo, 2002). Cronin and Taylor, 1992) investigated the conceptualization and measurement of service quality and its relationship with consumer satisfaction and purchase intentions. They compared computed difference scores with perception to conclude that perceptions only are better predictor of service quality

This study provides significant contribution to theory by devising a reliable and valid measurement instrument which is inspired by SERVQUAL (Parasuraman, Zeithaml and Berry, 1988) ,technical/ functional quality (Grönroos, 1984) mode, l and also takes care of changed environment in the past decade. In the current environment customer hardly comes directly in contact with the organization. Product is available through retailers, service is available through call centers which may or may not be outsourced, hence customer's perception about service quality is no longer based as per earlier environment.

For this, an exploratory qualitative study was undertaken to better understand the key dimensions. The insights obtained from exploratory investigations revealed the confirmation of new factors—'convenience' and 'customer perceived network quality', Tangibles taking new forms and not valid per se, merging of responsiveness in other factors and affordability coming out to be one of the main factors in affecting the overall service quality.

These findings were validated through analysis procedures. For assessing customer perceived service quality, a six-dimensional instrument comprising of Affordability, reliability, assurance, empathy, convenience, and customer perceived network quality was revealed.

It suggests affordability, convenience and perceived network quality are dimensions which have become prominent with new dynamic environment where direct interaction with provider is lower.

The research resulted in the development of a reliable and valid instrument for assessing customer perceived service quality for cellular mobile services in the current environment.

Scope for further Research:

Some of the key areas for future research include the following:

• Data has been collected from west UP in India; there may be a possibility of demographic, regional, cultural differences playing a role in the outcome of the study. There is a need to test results for other geographies.

• Study may be extended to Customer retention, consumer spending behavior, switching behavior by managers and academicians. It is hoped that the availability of this study and instrument will encourage research on service quality with changing environment.

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