INVESTIGATING THE IMPACT OF SERVICE QUALITY ON CUSTOMER SATISFACTION AND LOYALTY: AN EMPIRICAL STUDY IN INDIAN TELECOM SECTOR

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Abstract: In today's age of service marketing, creation and delivery of mobile telecommunication services suitable to meet the customers' needs is most challenging to the service providers. The present study is concerned with a broad picture of perceived service quality and customer satisfaction & loyalty in mobile telecom services provided by BSNL as well as private sector in India. Data were collected from 803 mobile phone users by survey method through a well tested reserach instrument. As the study revealed, advertisement has very less impact on creating a customer more loyal, appropriate strategies are required on customer satisfaction created by better service quality.

Key Words: Service quality, Customer satisfaction, Customer loyalty, Advertisement, Telecommunication

JEL Classification Code: M310, C390

INTRODUCTION

Since early 1990s competitive landscape in India has changed drastically. The policies of Government like liberalization, privatization and globalization have ensured that there is more number of competitors in any field of business. The profiles of the consumers also have changed with respect to their demographics, social and psychographics. The market is more dynamic than ever. This effect is more pronounced where technology is changing rapidly, giving the customers newer and newer innovative services. The associated cost to the customers has also come down. Customer service is the primary end of any mobile telecommunication service providers. A customer always wants something and expects that the mobile service company should come up to the level to fulfill those needs. Again, the more you provide, still more the consumer needs. Service quality is about meeting customers' needs and requirements, and how well the service level delivered matches customer expectations.

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In the telecom services industry also, these factors which change the competitive landscape has been more pronounced. Government control over telecom services has become a thing of past. Mobile connectivity is now no more a subject matter of control. The services associated with mobile services have become numerous with the advent of new communication technologies. People have access to more services, better services and faster services. In a sense newer standards have emerged with respect to customer's expectations.

Just as people cannot live without eating, companies can't survive without having satisfied customers (Gould, 1995). The author put more emphasis on the fact on making some of the customers much more than just satisfied. Service providers should exceed customers' expectations by considering three selective dimensions, viz. value, service, and dealing with complaints. Each company tries to survive and sustain itself by offering services required by the customer and remaining closer to the customer. It can be summarized in short by indicating that the companies are forever trying to offer quality services, where the quality parameters are forever expanding.

While a great deal of research has been conducted regarding service quality, to date few studies have been conducted relative to the dimensions of service quality in the context of industrial telecommunication technical field service. Moreover, little effort has been made to integrate the concept of outcome quality along with the commonly included aspects of functional quality in comprehensive overall service quality models. While numerous studies have attempted to establish the directional and causal relationships of the service quality and customer satisfaction constructs, results have often been contradictory relative to the antecedent nature and the mediating effects these constructs have on one another as well as on various affective outcome states. Therefore, the main thrust of this study is to determine the functional and outcome dimensions of perceived service quality from the customers' perspective, and to establish what the relationship is between service quality and customer satisfaction in the context of industrial telecommunication technical field service.

At this backdrop, the major research problem to be investigated in the current study is gathering information about the customers of both public and private sector mobile service providers in India for finding out the major determinants of perceived service quality leading to customer satisfaction giving the outcome of customer loyalty as well as to measure the effect of perceived advertisement content on this strategic relation for the formulation of future marketing strategy.

LITERATURE REVIEW

It was during 1980s that the concept of service quality started gaining importance from the researchers. Gronroos (1982; 1984), Lehtinen (1985), Lovelock (1983) and

others were pioneers to investigate around the concept of service quality. One of the most important models used in service quality was "SERVQUAL" (Parasuraman et al., 1985, 1988), which indicated that it is gap between expectation and performance. This model however went on to be refined by contribution from other researchers. In the light of the complexities and differences with respect to product, evaluation of the quality of services are to be based jointly upon the perception of quality by customers as well as service providers perception (Parasuraman, Zeithamal, and Berry, 1985).

Evaluation of service has primarily two components; value as per customer's perception and the degree to which his or her needs are satisfied (Dale, 2003; Hsieh et al., 2002). There are other dimensions to service quality in terms of its contribution in reduction of cost, increase of customer loyalty and increase in profitability of the organization (Cronin and Taylor, 1992; Newman, 2001; Guru, 2003; Hallowell, 1996). Final arbitrator of the level of service quality is the customer. It is the feeling of satisfaction of the customer which determines the level of service quality (Bertrand, 1989; Boothe, 1990). Beyond the level of satisfaction, the researchers have been concerned about the definition and measurement of service quality. The anticipated level of service before and the perception of service which they received also have merited researcher's attention (Reynoso and Moores, 1995). There is positive relationship of service quality with customer satisfaction (Danaher and Mattsson, 1994; Kim *et al.*, 2004), customer preference (Ranaweera and Neely, 2003), profitability and competitiveness (Fornell, 1992; Danaher and Rust, 1996).

Customer satisfaction has also been found to be multi-dimensional in nature and takes multiple experiences encountered with service provider. Thus overall satisfaction consists of multiple service encounters. Parasuraman *et al.* (2000), indicate that the general satisfaction is based on the information from all separate prior experiences with the service provider and can be considered as a function of all prior transactions and information. The works of Parasuraman, Zeithaml, and Berry (1985) act as the starting point for further investigation. The tool they created has five dimensions of service quality and each dimension has gaps between expectation and performance. The tool so devised is known as SERVQUAL model, which was followed up with their research paper in 1988. The fifth gap was named 'perceived service quality' (Carman, 1990). The instrument is divided into five key sections and labelled after the five dimensions of service quality identified by Parasuraman et al, (1985). This instrument is widely used in industry as well as research to understand the perception of the existing and target customers. It measures the level of service quality in the organization.

Different researchers (Cronin and Taylor, 1992; Spreng and Mackoy, 1996) have indicated that service quality and customer satisfaction are closely related and the former influence the later. To extend the concept further many findings (Oliver, 1980; Stum and Thiry, 1991) suggest that a satisfied customer would become a

repeat customer. A repeat customer is expected to become a loyal customer and will recommend the product or service to other people. Thus a good service quality would pay two dividends: a satisfied customer will continue to be a user and thus preserve the existing market share, and secondly, a satisfied customer will recommend the product or service to others, such recommendation will influence the purchase intentions in a positive way. This will increase the market share.

In such a competitive scenario, it is the loyal customers who would stay and bring more customers only if the level of customer satisfaction is significantly improved (Khan Inamullah 2012). The mode of communication by a satisfied customer would be higher and of positive level of word of mouth, alternatively a higher level of positive word of mouth indicates a higher level of satisfaction. Similarly a lower level of negative word of mouth also could indicate a higher level of customer satisfaction (Ranaweera Chatura, 2007).

RESEARCH METHODOLOGY

The study is mainly based on field survey and is exploratory in nature. The sources of data are mainly primary and data were collected through one tailor-made questionnaire. However, few secondary sources were also referred to collect data about BSNL and private mobile service providers' present status in Indian market.

The data for the study were collected through a structured questionnaire from 803 cell phone users covering all telecom districts of the state of Odisha, India during the year of 2015. While choosing a cell phone user, the method of random sampling was followed and the respondents were approached personally. Initially 1000 samples were planned covering 500 customers of both private and public sector cell phone service providers. Because of less accessibility to rural area customers, more urban concentration, unwillingness of the customers to provide data, time and budgetary constraints restricted the sample size to 803, out of which 373 from BSNL (public sector) and 430 from private sectors. A questionnaire for customer survey was designed keeping the broad parameters in mind, which was pre-tested before finalisation. Data were collected for perceived service quality, customer satisfaction, customer loyalty and perceived advertisement in a 7-point Likert scale, ranging from 1 indicating strongly unfavorable response category to 7 indicating strongly favorable response category. The questionnaire containing all the items related to service quality (Simon Gyasi Nimako *et al.*, 2012), customer satisfaction & loyalty (Xuan Zhang *et al.*, 2009), and customer perception about advertisement (Mariam Jamshed, 2010) were developed with minor modifications, which was used for customer survey and administered keeping the broad objectives in mind. Apart from this, some other type of data like demographic background, reasons for using the current service, views regarding staff, etc. were collected. The data collected through measurement instrument were entered into an Excel spread sheet and then transferred to SPSS data sheet for further processing. Cross

tabulations were made to understand the underlying relationships among the variable under study keeping the broad objectives in mind. Statistical tools like one way ANOVA, simple and multiple regression analysis, factor analysis, etc were used to test the formulated hypotheses and draw some other useful findings. Finally, for structural equation modeling purpose, Amos-17 software package was used. Structural models were developed and tested on the basis of Confirmatory Factor Analysis (CFA), after studying measurement models.

CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

Based on the past literature review, the current research study started with a conceptual model as given in Figure-1. The model shows the way telecom customers are getting satisfied because of service quality (SQ), which ultimately leads to customer loyalty. Again, the impact of advertisement and personal factors of the customers have also some influence on customer satisfaction and their loyalty level as shown in the model.

Figure 1: Conceptual Model of the Study
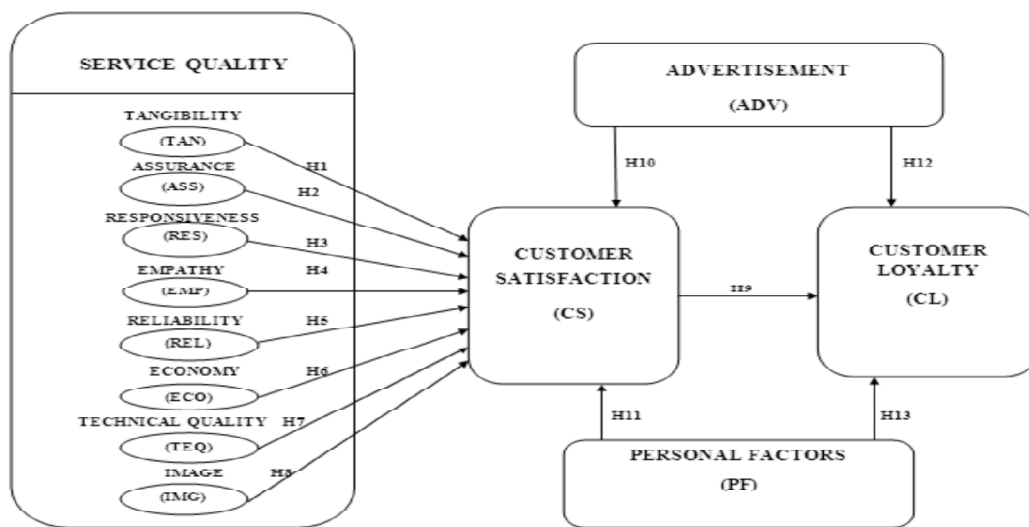
Based on the model proposed for the study, following hypotheses were identified for the research to be tested.

H_1: Tangibility and customer satisfaction are significantly related with each other.

H_2: Assurance and customer satisfaction are significantly related with each other.

H_3: Responsiveness and customer satisfaction are significantly related with each other.

H_4: Empathy and customer satisfaction are significantly related with each other.

H_5: Reliability and customer satisfaction are significantly related with each other.

H_6: Economy and customer satisfaction are significantly related with each other.

H_7: Technical quality and customer satisfaction are significantly related with each other.

H_8: Image and customer satisfaction are significantly related with each other.

H_9: Customer satisfaction is significantly affecting customer loyalty.

H_{10}: Advertisement affects customer satisfaction significantly.

H_{11}: Customers' personal factors affect customer satisfaction significantly.

H_{12}: Advertisement affects customer loyalty significantly.

H_{13}: Customers' personal factors affect customer loyalty significantly.

MEASUREMENT SCALE DESCRIPTION AND VALIDITY CHECK

The questionnaire was mainly adapted from previous studies, and modified according to the study requirements. To prepare the questionnaire, this study used multifactor instruments related to customers' perceived service quality, developed by Parasuraman, A., Zeithaml, V. and Berry, L.L. (1988), Gi-Du, K. & James, J. (2004) and Simon Gyasi Nimako, Foresight Kofi Azumah, Francis Donko and Veronica Adu-Brobbey (2012), with minor modifications. For the instrument of customer satisfaction and loyalty, the key parameters were identified and modified by making thorough investigation of the literature given by Xuan Zhang and Yuanguan Feng (2009). Constructs related to customer perception about the advertisements of mobile phone services were derived and modified from the study of Mariam Jamshed (2010). All other items related to personal factors of customers were self generated. In total, there are 12 numbers of first order constructs, out of which perceived service quality contains 8 and advertisement perception measure contains 2 constructs and rest two constructs namely, customer satisfaction and loyalty are having 4 & 5 items respectively. The names of the explored constructs related to perceived service quality are tangibility, reliability, assurance, empathy, responsiveness, technical quality, economy and image. Perception about advertisement includes constructs like liking of Ad, and Ad benefits. There are 58 numbers of measurement items in total out of which 36 are of perceived service quality, 4 of customer satisfaction, 5 of customer loyalty, and 13 are of perception about advertisement.

SPSS version 20 statistical software was used to perform a Cronbach's alpha test to test reliability of different latent variables under perceived service quality, perception about Ad and directly of customer satisfaction & loyalty, for which data of pilot study got used. Table 1 demonstrates the alphas related to all such constructs as well as the Cronbach Alpha value of all items in the model. With the

exception of tangibility, image and economy, all other alphas are greater than 0.800, which is generally suggested as the minimum alpha value to be considered reliable for group research. The 0.800 is only a suggested value, and the 0.79 value for these three variables are close to the value and it is believed that the alpha value for these questions is still high enough to be useful in this analysis.

Table 1
Scale Reliability (Cronbach's alpha score)

Variables:	Tangibility	Reliability	Assurance	Empathy	Responsiveness	Image
Score:	0.793	0.858	0.812	0.897	0.868	0.798
Variables:	Economy	Technical Quality	Customer Satisfaction	Customer Loyalty	Ad liking	Ad Benefit
Score:	0.796	0.843	0.867	0.861	0.877	.896

Score of all variables (for final measurement model): 0.856

To analyze construct validity of the survey instrument, a factor analysis was performed. SPSS was used to conduct the quantitative portion of this analysis. Factor analysis was used to detect which survey questions should be grouped together in the predefined constructs. The Table 2 represents factor loading matrix with respect to perception of advertisement generated through exploratory factor analysis (EFA). As the table showed less than 0.50 factor loadings of items 1 & 2, these first two items were not further considered for final analysis.

Table 2
Factor loadings of Perception of Advertisement

		Standardized Loadings	
Item No	Items	Factor 1 Ad Liking	Factor 2 Ad Benefit
1	Ad Liking -1		0.467
2	Ad Liking -2		0.492
3	Ad Liking -3		0.861
4	Ad Liking -4		0.806
5	Ad Liking -5		0.841
6	Ad Liking -6		0.812
7	Ad Benefit-1	0.608	
8	Ad Benefit-2	0.763	
9	Ad Benefit-3	0.815	
10	Ad Benefit-4	0.728	
11	Ad Benefit-5	0.638	
12	Ad Benefit-6	0.793	
13	Ad Benefit-7	0.764	

The measurement model with other three constructs was evaluated using confirmatory factor analysis (CFA). The model fit indicators used for the model fit are normal chi-square (CMIN/df), normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tucker-Lewis index (TLI), comparative fit index (CFI), and the root mean square error of approximation (RAMSEA).

The values of these indicators showed a good model fit for service quality, customer satisfaction and loyalty.

RESULTS AND DISCUSSIONS

The quantitative analyses related to hypotheses tests which were used to draw the major findings are briefly described in Table 3.

H_{11} & H_{13} were tested through one way ANOVA and all other hypotheses tested through regression analysis. Perceived service quality strongly affects the degree of customer satisfaction in both types of service providers. Very less evidences were found to support the fact that customer satisfaction affects customer loyalty in BSNL, but little bit more favorable results were got to support this link in case of private service customers. Personal factors of customers have no significant impact on customer loyalty in both of the service providers.

A structural equation model (SEM) got developed taking observed variables related to 8 dimensions of service quality as perceived by the customers after calculating the average values of each and every factor with respect to the master construct, 4 items of CS, 5 items of CL, and 2 averaged variables of Ad (Ad likingness and Ad benefit). In the model few links have not been considered which correlates with each other insignificantly as investigated earlier.

The latent variables are the unobserved customer attitude aspects that can be explained by the observed variables. The latent variables were defined by means of an exploratory factor analysis (EFA) implemented in the form of principal component analysis. EFA was conducted by using a correlation matrix. To determine the number of components, only the eigen values greater than or equal to 1 were considered. An orthogonal rotated solution (Varimax) was adopted. In addition, the KMO test (Kaiser, Mayer and Olkin) was also conducted to know the sample suitability. Two separate structural equation models are proposed over here, one for BSNL and another for private mobile phone service providers. By means of the EFA, eight latent variables for perceived service quality, and two for advertisement perception for each of the sectors were identified. After identifying all the unobserved latent variables and observed variables, path diagrams were drawn and analyzed separately both for BSNL and other private sectors, by the help of Amos software package, which is shown in Figure 2. This figure is the SEM of mobile phone service customers' attitudes and there are four extracted latent variables. The observed variables, named by their respective derived

Table 3
Summary of statistical findings of hypotheses tests

| Research Hypotheses	Statements of Hypotheses	BSNL		Private Service	
		Results	Remarks	Results	Remarks
H_1	TAN affects SQ	B=0.470 $p < 0.01$	Supported	B=0.393 $p < 0.01$	Supported
H_2	ASS affects SQ	B=0.446 $p < 0.01$	Supported	B=0.367 $p < 0.01$	Supported
H_3	RES affects SQ	B=0.444 $p < 0.01$	Supported	B=0.403 $p < 0.01$	Supported
H_4	EMP affects SQ	B=0.463 $p < 0.01$	Supported	B=0.426 $p < 0.01$	Supported
H_5	REL affects SQ	B=0.455 $p < 0.01$	Supported	B=0.433 $p < 0.01$	Supported
H_6	ECO affects SQ	B=0.374 $p < 0.01$	Supported	B=0.304 $p < 0.01$	Supported
H_7	TEQ affects SQ	B=0.489 $p < 0.01$	Supported	B=0.387 $p < 0.01$	Supported
H_8	IMG affects SQ	B=0.410 $p < 0.01$	Supported	B=0.338 $p < 0.01$	Supported
H_9	CS1 affects CL	B=0.079 $p > 0.05$	Rejected	B=0.056 $p > 0.05$	Rejected
H_9	CS2 affects CL	B=0.171 $p < 0.01$	Supported	B=0.232 $p < 0.01$	Supported
H_9	CS3 affects CL	B=0.013 $p > 0.05$	Rejected	B=0.067 $p > 0.05$	Rejected
H_9	CS4 affects CL	B=0.363 $p < 0.01$	Supported	B=0.330 $p < 0.01$	Supported
H_{10}	Ad_liking affects CS	B=0.074 $p < 0.05$	Moderately Supported	B=0.106 $p < 0.05$	Moderately Supported
H_{10}	Ad_benefit affects CS	B=0.258 $p < 0.01$	Supported	B=0.189 $p < 0.01$	Supported
H_{12}	Ad_liking affects CL	B=0.159 $p < 0.01$	Supported	B=0.199 $p < 0.01$	Supported
H_{12}	Ad_benefit affects CL	B=0.090 $p < 0.05$	Moderately Supported	B=0.027 $p > 0.05$	Rejected
H_{11}	Age affects CS	F=1.141 $p > 0.05$	Rejected	F=0.562 $p > 0.05$	Rejected
H_{11}	Education affects CS	F=3.430 $p < 0.01$	Supported	F=1.896 $p > 0.05$	Rejected
H_{11}	Gender affects CS	F=2.883 $p > 0.05$	Rejected	F=1.505 $p > 0.05$	Rejected
H_{11}	Occupation affects CS	F=1.907 $p > 0.05$	Rejected	F=3.692 $p < 0.01$	Supported
H_{11}	Income affects CS	F=3.606 $p < 0.05$	Moderately Supported	F=1.212 $p > 0.05$	Rejected
H_{11}	Location affects CS	F=3.987 $p < 0.05$	Moderately Supported	F=4.431 $p < 0.01$	Supported
H_{13}	All Personal Factors affect CL	For all "F" $p > 0.05$	Rejected	For all "F" $p > 0.05$	Rejected
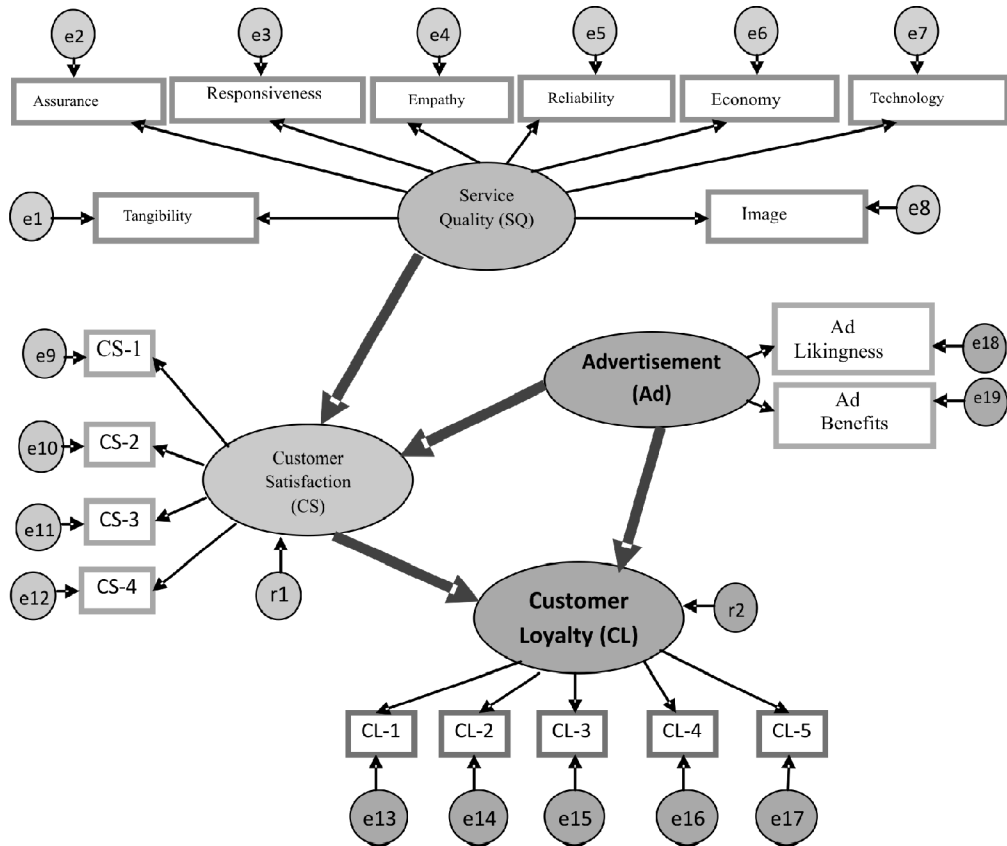
Figure 2: (Structural Equation Model)

dimensions is either the average values of concerned items within each sub-construct, or directly individual items which ultimately indicate respective constructs.

Model results are shown in Tables 4 & 5, for both types of service providers. Specifically, the parameters estimated (regression weights), the standard error (S.E.), the critical ratio (C.R.), and the level of statistical significance (p) of each variable are reported in these tables. Some test results on the goodness of fit indices are finally given in Table 6.

Each unstandardized regression coefficient represents the amount of change in the dependent variable for each one unit change in the variable predicting it. The probability value associated with the null hypothesis that the coefficient values are equal to zero, is displayed under p-Level column. Both for BSNL and private service providers, all of the regression coefficients in the SEM are almost significantly different from zero at 1% level of significance, except advertisement

Table 4
Regression Weights (BSNL)

			Unstandardized Estimate							Standardized Estimate
			Estimate	S.E.	C.R.	P-Label				Estimate
cs	<--	sq	0.534	0.056	9.517	0.000	cs	<--	sq	0.502
cs	<--	ad	0.202	0.058	3.496	0.000	cs	<--	ad	0.194
cl	<--	cs	0.822	0.059	13.864	0.000	cl	<--	cs	0.773
cl	<--	ad	-0.003	-0.003	-0.064	0.949	cl	<--	ad	-0.003
MEANTAN	<--	sq	1.000				MEANTAN	<--	sq	0.906
MEANASS	<--	sq	1.052	0.035	30.306	0.000	MEANASS	<--	sq	0.922
MEANRES	<--	sq	1.130	0.033	34.262	0.000	MEANRES	<--	sq	0.958
MEANEMP	<--	sq	1.076	0.034	32.024	0.000	MEANEMP	<--	sq	0.938
MEANREL	<--	sq	1.021	0.032	32.406	0.000	MEANREL	<--	sq	0.942
MEANECO	<--	sq	1.063	0.043	24.615	0.000	MEANECO	<--	sq	0.851
MEANTEQ	<--	sq	1.070	0.034	31.651	0.000	MEANTEQ	<--	sq	0.935
MEANIMG	<--	sq	1.002	0.037	27.083	0.000	MEANIMG	<--	sq	0.885
CS4	<--	cs	1.000				CS4	<--	cs	0.800
CS3	<--	cs	0.925	0.065	14.289	0.000	CS3	<--	cs	0.702
CS2	<--	cs	0.911	0.049	18.766	0.000	CS2	<--	cs	0.875
CS1	<--	cs	0.730	0.043	17.108	0.000	CS1	<--	cs	0.810
CL5	<--	cl	1.000				CL5	<--	cl	0.868
CL4	<--	cl	0.923	0.042	22.039	0.000	CL4	<--	cl	0.868
CL3	<--	cl	0.998	0.045	22.243	0.000	CL3	<--	cl	0.873
CL2	<--	cl	0.744	0.056	13.201	0.000	CL2	<--	cl	0.620
CL1	<--	cl	0.683	0.045	15.183	0.000	CL1	<--	cl	0.687
AVGADLIK	<--	ad	1.000				AVGADLIK	<--	ad	0.689
AVGADBE	<--	ad	1.139	0.333	3.416	0.001	AVGADBE	<--	ad	0.886

Table 5
Regression Weights (Private Service Providers)

			Unstandardized Estimate							Standardized Estimates	
			Estimate	S.E.	C.R	P-Label					Estimate
cs	<--	sq	0.465	0.070	6.625	0.000	cs	<--	sq		0.457
cs	<--	ad	0.123	0.066	1.871	0.041	cs	<--	ad		0.134
cl	<--	cs	0.755	0.060	12.507	0.000	cl	<--	cs		0.806
cl	<--	ad	0.002	0.041	0.054	0.957	cl	<--	ad		0.003
MEANIMG	<--	sq	1.000				MEANIMG	<--	sq		0.872
MEANTEQ	<--	sq	1.047	0.035	30.153	0.000	MEANTEQ	<--	sq		0.936
MEANECO	<--	sq	1.104	0.047	23.397	0.000	MEANECO	<--	sq		0.831
MEANREL	<--	sq	1.052	0.034	30.637	0.000	MEANREL	<--	sq		0.942
MEANEMP	<--	sq	1.056	0.035	29.831	0.000	MEANEMP	<--	sq		0.931
MEANRES	<--	sq	0.996	0.034	29.523	0.000	MEANRES	<--	sq		0.927
MEANASS	<--	sq	0.999	0.036	27.541	0.000	MEANASS	<--	sq		0.900
MEANTAN	<--	sq	1.052	0.039	27.237	0.000	MEANTAN	<--	sq		0.896
CS4	<--	cs	1.000				CS4	<--	cs		0.784
CS3	<--	cs	0.961	0.056	17.250	0.000	CS3	<--	cs		0.788
CS2	<--	cs	0.994	0.051	19.593	0.000	CS2	<--	cs		0.882
CS1	<--	cs	0.660	0.045	14.651	0.000	CS1	<--	cs		0.687
CL5	<--	cl	1.000				CL5	<--	cl		0.751
CL4	<--	cl	1.098	0.069	16.007	0.000	CL4	<--	cl		0.790
CL3	<--	cl	1.164	0.071	16.370	0.000	CL3	<--	cl		0.807
CL2	<--	cl	0.985	0.084	11.714	0.000	CL2	<--	cl		0.587
CL1	<--	cl	0.878	0.065	13.460	0.000	CL1	<--	cl		0.669
AVGADLIK	<--	ad	1.000				AVGADLIK	<--	ad		0.785
AVGADBE	<--	ad	1.006	0.071	14.202	0.000	AVGADBE	<--	ad		0.862

to customer loyalty. Standardized estimates allow evaluating the relative contributions of each predictor variable to each outcome variable and these are given in separate columns in both of the Tables 4 and 5.

From the Tables 4 and 5, it is observed that the level of perceived service quality is best explained by its factors extracted in BSNL as well as private service providers, as the coefficient has a value of more than 0.85 for BSNL and 0.80 for private sector. But the construct of CL is least explained by the CL2 item in both of the service providers (0.62 for BSNL, 0.58 for private sector).

Table 6
Relative Fit Indices of Goodness of Fit

Indices	*Values*	
	BSNL	*Private Service Providers*
Normed fit index (NFI)	0.975	0.968
Relative fit index (RFI)	0.967	0.962
Incremental fit index (IFI)	0.980	0.973
Tucker Lewis index (TLI)	0.974	0.968
Comparative fit index (CFI)	0.980	0.973
Root mean square error of approximation (RMSEA)	0.078	0.074

Table 6 represents some indicators of test of relative fit of both of the models meant for two types of service providers. From this table it is observed that the tests on the goodness of fit are satisfactory. As the cutoff values for fit indices are magic 0.90 (Hair *et al.*, 2009), all of the relative indices mentioned above both for BSNL and private service providers fulfill this criteria. Again the root mean square error of approximation (RMSEA) has a value of 0.078 and 0.074 for BSNL and private service providers respectively. The values of these indices are comparatively low and therefore are quite good. The cutoff value for this statistical measure is 0.08 and a well fitted model should have this RMSEA value of below the cutoff value.

Hence, through simultaneous analysis, it was found that although advertisement has effect on customer satisfaction, it has no such significant effect on customer loyalty in both BSNL and other private service providers.

MANAGERIAL IMPLICATIONS

The emerging changes in the Indian economy, especially, the Indian telecommunication sector calls for adoption of efficient and effective marketing strategies. Service quality offers a way of achieving success among competing service providers, particularly in the case of companies that offer nearly identical services, such as mobile phone services, where establishing service quality may

be the only way of differentiating oneself. Such differentiation can yield a higher proportion of consumers' choices. Customer satisfaction and attracting & retaining customers, as evident from the study are two major challenges before the service providers that bring improvement in business. The next important factors are satisfied customers as the advertisers and creating goodwill. BSNL as well as private sector mobile service companies should give more attention to these factors. Attractiveness of advertisements should be properly taken care of to increase the degree of customer loyalty, where as real benefits of advertisements increase the level of customer satisfaction only.

The mobile telecom service providers in their own interest should tune up the customer service with a view to retaining the existing customers and to expand their business by winning new customers. It is not easy to cultivate new customers, as the competitors also will be after them. In an attempt to develop new customers, if the existing customers are neglected, they are sure to lose the existing customers also. Managing customer relationship is an art, without which no organisation can hope to succeed. When the telecom service provider makes an attempt to excel, it should not miss out customer relationship. Building value for the customers is more important than building value to the shareholders. Hence mobile phone companies' operational activities, service quality, customer satisfaction, customer loyalty and profitability create a continuum in giving service to customers. Each of the components of this continuum has to be monitored and managed by them in to-day's competitive world.

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