PREDICTORS OF CUSTOMER LOYALTY: A CASE OF INDIAN MOBILE TELECOMMUNICATION SERVICES SECTOR

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ABSTARCT

The current research investigated the predictors of customer loyalty in Indian Mobile Telecommunication Services Sector. The study model was estimated with the help of structural equation modeling Partial using Least Square (PLS) estimation method. The model was found fit with reference to indicators like; average path coefficient (APC=0.416, p<0.001), Average R Square (ARS=0.609, p<0.001), and Average Variance Inflation Factor (AVIF =2.533, Good if<5). The results of the study highlighted predictors of the customer loyalty with the help of significant path coefficients. Sample size comprised of 411 responses.

Keywords: Service Quality Attributes, Customer Value, Customer Satisfaction, Customer Loyalty, Mobile Telecommunication Services, Structural Equation Modeling.

INTRODUCTION

In order to enhance performance and bring operational efficiency, quality had received a very important place in strategic planning process (Babakus & Boller, 1992; Garvin, 1988; Phillips et al., 1983). The service industry also embraces this aspect of quality assurance. According to Rust & Oliver (1994) quality is instrumental in increasing customer value and satisfaction, which in turn leads to repurchase intentions. Also it ensures high profitability and returns on investments.

Mobile telecommunications market of India is growing at a very high volume. Indian telecommunication service market has grown from 543.20 million subscribers in 2009 to about 951.84 million subscribers in December, 2014, registering surprizing yearly growth rate (Telecom Regulatory Authority of India, 2014).

With reference to service marketing literature, Parasuraman et al. (1985) developed an instrument to assess the service quality and named it as SERVQUAL. Hartline & Jones (1996) developed a study model to investigate the delivery process of service quality. Authors also assessed the impact of service quality delivery process and customer value on behavioural intentions. In service contexts, Behavioural intentions of the customers can be assessed with the help of direct and indirect effects of service quality, customer value and satisfaction (Cronin et al., 2000). Customer satisfaction completely mediates the relationship between quality of services and customer loyalty (Caruana, 2002). Author suggested that customer value and reputation of the firm are important constructs for better understanding of customer loyalty. Therefore, an integrative model comprising service quality, customer value, customer satisfaction, and customer loyalty is required to decipher true relationships among these constructs.

Hence, with this background, this study expands the preceding researches conducted by numerous scholars and contains the model developed by Heskett et al. (1997), popularly known as Service Profit Chain. So, proposed conceptual framework for this study is depicted in Figure 1 below:

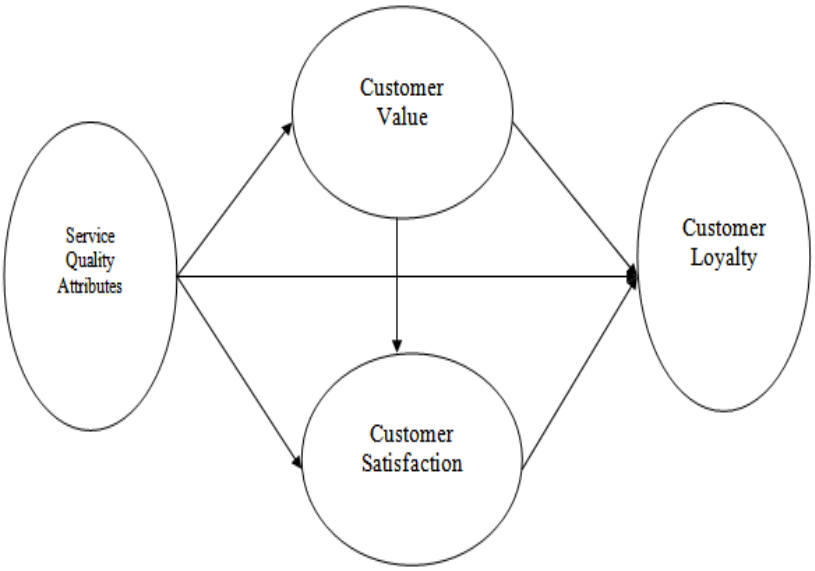

FIGURE 1
CONCEPTUAL RESEARCH FRAMEWORK FOR PREDICTORS OF CUSTOMER LOYALTY

Objective of the Study

The objective of the study is to examine the effect of service quality dimensions on customer value, customer satisfaction and customer loyalty.

LITERATURE REVIEW

The Effect of Service Quality Attributes on Customer Value, Satisfaction, Loyalty

Bolton & Drew (1991) developed a model of how customers with past experiences and expectations gauge performance levels of service offered, perceived customer value, and overall quality of service. The study was conducted for local telephone service users to assess the provided service. The findings of the study showed that those residential customers' assessment of perceived customer value and service quality in total is a primary function of disconfirmation arisen from discrepancies between expected and perceived performance levels of service. Further direct impact of perceived performance levels on overall service quality assessment and customer value was also determined.

Cronin & Taylor (1992) criticized the conceptualization and measurement aspects of service quality in SERVQUAL model and concluded that service quality is an antecedent of customer satisfaction. Authors further concluded that customer satisfaction impacted loyalty more intensively in comparison to service quality.

Boulding et al., (1993) developed a service quality model namely; behavioural process model. This model helps in finding the method of perception formation by the customers about the quality of services. Also this model identifies the consequences of these perceptions on individual level behavioural intention.

The expectations of customers, experience during service delivery encounter are considered base for perception formulation about the quality of services. The overall quality of service is an outcome of the assessment of various dimensions of service quality. Behavioural intentions of the customers are the outcome of this assessment. Authors in their study confirmed reliability as the key driver of overall service quality.

Hartline & Jones (1996) propounded a model (Service quality attributes →Service Value → Consumers' behavioural intentions) to investigate the interrelationships. Their model was unswerving with the models suggested by (Bolton & Drew, 1991; Boulding et al., 1993). The study was conducted in context of hotel services and authors concluded that the performance of front desk employees has the greatest impact on consumers' word of mouth intentions. Overall service quality and value were found mediating variables between employees performance attributes and consumers' word of mouth intentions.

Mittal et al. (1998) proposed a model to examine the relationship among attribute level performances, overall satisfaction, and repurchase intentions. Empirical findings revealed that a negative performance on an attribute has a larger impact on overall satisfaction and repurchase intentions than positive performance has on the same attribute and overall satisfaction displayed declining feeling to attribute level performance.

Cronin et al. (2000) argued that service quality impacted service value, whereas sacrifice e didn't impact. For customer satisfaction, both service quality and service value were found significant predictors. Based upon their study, they suggested conducting further studies based on same type of composite model with addition of some more decision making variables like tangible quality of services and expectations. Customer satisfaction is a function of service quality (staff service and corporate reputation), price, convenience, and innovativeness (Athanassopoulos, 2000).

Gerpott et al. (2000) identified predictors of customer satisfaction namely; quality of network, price assessment and individual benefits. Authors further probed reasons for retention behaviour and found that price of the service, individual benefits and option for porting phone number had robust effects. Johnson & Sirikit (2002) found tangible dimension emerged as the most important one. Authors didn't find support for hypothesis indicating impact of service quality ratings on behavioural intentions. Customer loyalty can be significantly impacted by service quality and customer satisfaction (Caruana, 2002). Performance of the product led to perceived customer performance (Athanassopoulos & Iliakopoulos, 2003).

Kim et al. (2004) confirmed predictors of customer satisfaction namely; call quality, customer support, value added services. Authors also confirmed positive significant effects of customer satisfaction and switching barrier on customer loyalty (Johns, 1981).

Wang et al. (2004) tested moderating effect of perceived customer value of the relationship between service quality dimensions and customer satisfaction. Authors also confirmed positive significant effects of dimensions of service quality on customer satisfaction. Aydin & Ozer (2005) found service quality as the most important construct in comparison to the all study constructs. Trasorras (2008) suggested based on the findings of study that value driven loyalty is a major component in customer repurchase intent. This combination, more so than any other in this study, proved to be the most powerful drivers in the customers' decision to remain a customer.

Chadha & Kapoor (2009) found positive associations of switching cost, service quality, and customer satisfaction with customer loyalty. However, the customer satisfaction was adjudged the most important predictor of customer loyalty. Customer service (0.262), pricing structure (0.232) and billing system (0.148) are the service quality dimensions that have the more positive impact on customer satisfaction, which subsequently impact customer loyalty (Santouridis & Trivellas 2010). The study also confirmed the mediating role of customer satisfaction on the service quality and customer loyalty relationship.

Research Gaps

Till date the research on service quality, customer value, customer satisfaction, and customer loyalty issues have dominated the services marketing literature, but a very few studies on mobile telecommunication services sector have been conducted to investigate the impact of the performance of service quality attributes on customer value, satisfaction, and loyalty into an integrated model.

The partial examination of simple bivariate relationships between any of the service constructs and behavioural intentions may not show their true relationship because of omitted variable bias, so integrated model needs to be developed (Cronin et al., 2000). Besides this, attributes like tangible quality of service product and quality of service environment plays a vital role in serving as symbols of quality and value to the customers (Cronin et al., 2000).

Caruana (2002) suggested to further probe the relationship between customer satisfaction and loyalty by including constructs like; customer value and firm reputation. In addition the relationships are required to be confirmed across different geographical regions given the differences based on values and culture (Wang et al., 2004). An investigation should be conducted on how the network quality (core service product quality) interacts with service quality to influence customer satisfaction (Lai et al., 2007).

Based on the literature review, it can be concluded that there is a need to conduct an empirical examination to assess the impact of service quality attributes on customer value, satisfaction, and loyalty in an integrative model (Brensinger & Lambert, 1990).

Hypotheses Development

Service Quality Attributes-Customer Value

Product features are vital for evaluation by the customers in order to assess their quality (Crane & Clark, 1988). Every dimension of the service quality contributes towards increase in perception by the users while interacting. The product quality assessment is the function of perceived performance by the consumers (Bolton & Drew, 1991). Mostly customers use select dimensions to infer quality irrespective of abundance of available dimensions (Zeithaml, 1988). All the dimensions of service quality have relative effects on overall service quality (Parasuraman et al., 1994); Zeithaml et al., 1991). Authors found reliability as the most important dimension of service quality across many service organizations. Service quality as a second order construct positively impacted customer value (Cronin et al., 2000). They further suggested service quality dimensions as antecedents to customer value.

Furthermore, Caruana (2002) found three dimensions of service quality in retail banking industry in Malta namely; employee performance, reliability and tangibles. Hence, dimensions of service quality can be considered as antecedents to customer value. So, the hypotheses may be proposed as:

H1a1: There exists a significant relationship between Employee Performance and Customer Value.

$H1b_1$: There exists a significant relationship between Transmission quality and Customer Value.

$H1c_1$: There exists a significant relationship between Competitiveness and Customer Value.

$H1d_1$: There exists a significant relationship between Credibility and Customer Value.

$H1e_1$: There exists a significant relationship between Reliability and Customer Value.

$H1f_1$: There exists a significant relationship between Support Attributes and Customer Value.

$H1g_1$: There exists a significant relationship between Operational Effectiveness and Customer Value.

$H1h_1$: There exists a significant relationship between Convenience and Customer Value.

Service Quality Attributes-Customer Satisfaction

The service marketing literature has witnessed service quality and satisfaction as two different, but related constructs (Caruana, 2002; Parasuraman et al., 1988; Churchill & Suprenant, 1982). Different empirical studies had proved service quality dimensions as predictors of customer satisfaction like; (Caruana, 2002; Spreng & Mackoy, 1995; Cronin & Taylor, 1992).

Johnston (1997) identified responsiveness as most important predictor of customer satisfaction. Author conducted this empirical study in banking sector. Authors like; Avkiran (1994), Bitner et al. (1990), Berry et al. (1985) found the similar findings in their respective empirical studies. This research work also found other factors namely; machine functionality, transaction reliability, and service confidentiality. Also, in order to delight customers, speedy processing of information works well. So, service quality dimensions can be considered as predictors of customer satisfaction (Wall & Payne, 1973). Therefore, study hypotheses are proposed as:

$H2a_1$: There exists a significant relationship between Employee Performance and Customer Satisfaction.

$H2b_1$: There exists a significant relationship between Transmission Quality and Customer Satisfaction.

$H2c_1$: There exists a significant relationship between Competitiveness and Customer Satisfaction.

$H2d_1$: There exists a significant relationship between Credibility and Customer Satisfaction.

$H2e_1$: There exists a significant relationship between Reliability and Customer Satisfaction.

$H2f_1$: There exists a significant relationship between Support Attributes and Customer Satisfaction.

$H2g_1$: There exists a significant relationship between Operational Effectiveness and Customer Satisfaction.

$H2h_1$: There exists a significant relationship between Convenience and Customer Satisfaction.

Service Quality Attributes-Customer Value-Customer Satisfaction

Based on the relationships established in the service marketing literature, customer value may mediate the relationship between service quality dimensions and customer satisfaction. Thus the hypotheses Amy be formulated as:

$H3a_1$: There exists a significant relationship between Employee Performance and Customer Satisfaction via Customer Value.

$H3b_1$: There exists a significant relationship between Transmission Quality and Customer Satisfaction via Customer Value.

$H3c_1$: There exists a significant relationship between Competitiveness and Customer Satisfaction via Customer Value.

$H3d_1$: There exists a significant relationship between Credibility and Customer Satisfaction via Customer Value.

$H3e_1$: There exists a significant relationship between Reliability and Customer Satisfaction via Customer Value.

$H3f_1$: There exists a significant relationship between Support Attributes and Customer Satisfaction via Customer Value.

$H3g_1$: There exists a significant relationship between Operational Effectiveness and Customer satisfaction via Customer Value.

$H3h_1$: There exists a significant relationship between Convenience and Customer Satisfaction via Customer Value.

Customer Value-Customer Satisfaction

Customer value impacts positively the customer satisfaction (Bojanic, 1996). Author conducted the empirical study in 4 lodging markets. Literature supports the claim of author with the mention of related research works conducted by (Cronin et al., 2000; Fornell et al., 1996). Therefore study hypotheses may be formulated as:

H41: There exists a significant relationship between Customer value and Customer Satisfaction.

Relationships among Service Quality Attributes, Customer Value, Satisfaction and Loyalty

Various empirical studies involving constructs like; service quality dimensions, customer value, customer satisfaction and customer loyalty provided concrete evidence of causal relationships across various service organizations. Service quality and customer satisfaction (Berry et al., 1985; Bitner et al., 1990; Avkiran, 1994; Johnston, 1997); service quality influences behavioural intention only through customer satisfaction (Gotlieb et al., 1994; Lien & Yu, 2001; Anderson & Sullivan, 1993; Boulding et al., 1993; Zeithaml, 1988). Customer value influences purchase intentions Cronin & Taylor (1992), direct and indirect influence of service quality on behavioural intentions (Cronin et al., 2000).

Customer value and reputation of company played an important role on the relationship between service quality and customer loyalty (Caruana, 2002). Customer satisfaction is an outcome of better customer value and improved service quality attributes. Further this satisfaction leads to customer loyalty (Heskett et al., 1997). Hence, the study hypotheses are formulated as:

$H5_1$: There exists a significant relationship between Customer Value and Customer Loyalty.

$H6_1$: There exists a significant relationship between Customer Value and Customer loyalty via Customer Satisfaction.

$H7_1$: There exists a significant relationship between Customer Satisfaction and Customer Loyalty

$H8a_1$: There exists a significant relationship between Employee Performance and Customer Loyalty.

$H8b_1$: There exists a significant relationship between Transmission Quality and Customer Loyalty.

$H8c_1$: There exists a significant relationship between Competitiveness and Customer Loyalty.

$H8d_1$: There exists a significant relationship between Credibility and Customer Loyalty.

$H8e_1$: There exists a significant relationship between Reliability and Customer Loyalty.

$H8f_1$: There exists a significant relationship between Support Attributes and Customer Loyalty.

$H8g_1$: There exists a significant relationship between Operational Effectiveness and Customer Loyalty.

$H8h_1$: There exists a significant relationship between Convenience and Customer Loyalty.

$H9a_1$: There exists a significant relationship between Employee Performance and Customer Loyalty via Customer Value/Customer Satisfaction

$H9b_1$: There exists a significant relationship between Transmission Quality and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9c_1$: There exists a significant relationship between Competitiveness and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9d_1$: There exists a significant relationship between Credibility and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9e_1$: There exists a significant relationship between Reliability and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9f_1$: There exists a significant relationship between Support Attributes and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9g_1$: There exists a significant relationship between Operational Effectiveness and Customer Loyalty via Customer Value/Customer Satisfaction.

$H9h_1$: There exists a significant relationship between Convenience and Customer Loyalty via Customer Value/Customer Satisfaction.

RESEARCH METHODOLOGY

Instrumentation

This study employed survey method to achieve set objective. A structured questionnaire with closed-ended questions was used to conduct survey. The responses of the respondents were measured on five-point Likert's scale. The survey items were borrowed from studies conducted by the authors like; Cronin et al., (2000) for customer value, Turkyilmaz & Ozkan, (2007) and Fornell et al., (1996) for customer satisfaction, Caruana (2002) and Gremler & Brown (1996) for customer loyalty. To measure service quality attributes, different studies from literature were consulted.

Data Collection Procedures

A sample of 350 respondents were collected by using multistage random sampling method. A pilot study was conducted to establish the appropriateness of the research instrument (n=68) in Indian mobile telecommunication setting. After data cleaning exercise, a total of 343 questionnaires were found suitable for the further analysis. Since pilot study results were in the favour of the reliability ascertainment, those 68 responses were also included in the final sample. Hence, the final sample size for the study was 411 (Türkyılmaz & Özkan, 2007).

ANALYSIS AND PRESENTATION OF FINDINGS

The General Sample Description

Table 1 & Table 2 represent the general description of sample and Descriptive Statistics for Each Study Construct.

Table 1
GENERAL SAMPLE DESCRIPTION

S.N.	Variable	Levels	Number	Percentage
1	Age	Below 20	71	17.20
		20-25	66	16.10
		25-35	162	39.50
		35-45	74	18.00
		45-60	26	6.20
		Above 60	12	3.00
2	Gender	Male	276	67.10
		Female	135	32.90
3	Marital Status	Married	241	58.75
		Unmarried	170	41.25
4	Educational Qualification	Pre-Intermediate	0	0.00
		Intermediate	23	5.50
		Graduate	268	65.20
		Others	120	29.30
5	Employment Status	Self-Employment	28	6.70
		Salaried/Wage Earner	110	26.80
		Business	104	25.40
		Professional	38	9.30
		Student	75	18.3
		Others	56	13.5
6	Monthly Household Income (In Rs.)	Below 10000	18	4.30
		10000-25000	100	24.30
		25000-50000	237	57.80
		50000-75000	34	8.40
		Above 75000	22	5.20

Table 2
DESCRIPTIVE STATISTICS FOR EACH STUDY CONSTRUCT

Construct	No. of Items	Mean
Service Quality Attributes	32	3.656
Customer Value	2	3.621
Customer Satisfaction	3	3.522
Customer Loyalty	8	3.579
Overall	45	3.595
	Standard Deviation = 0.890012	

Relevance of Dimensions of Service Quality (Correlation Analysis)

The Pearson's correlation (r value) was calculated to ascertain the relevance of various dimensions of service quality construct in Table 3.

Table 3
CORRELATION COEFFICIENT 'R' VALUE

S.N.	Name of Dimension	'r' Value
1	Employee Performance	0.775
2	Transmission Quality	0.756

3	Competitiveness	0.760
4	Credibility	0.637
5	Reliability	0.790
6	Support Attributes	0.723
7	Operational Efficiency	0.747
8	Convenience	0.727

It can be seen from the above Table 3 that all correlation coefficient values are above 0.6. Hence, it is concluded that all dimensions are relevant.

RELIABILITY AND VALIDITY ANALYSIS

Reliability

Table 4
CRONBACH'S ALPHA COEFFICIENTS

S.N.	Name of Construct	No. of Items	Cronbach's alpha
1	Service quality attributes	32	0.935
2	Customer value	2	0.704
3	Customer satisfaction	3	0.781
4	Customer loyalty	8	0.866
5	Overall	45	0.952

It can be seen from the above Table 4 that Cronbach's alpha values range from 0.704 to 0.935. Hence all constructs passed the reliability test.

Data Analysis

In this study, all variables were measured on interval scales. In order to explore factor structure among the thirty two variables of service quality, an exploratory factor analysis with Principal Component Analysis (PCA) was used by using IBM SPSS 17.0 in Table 5, Table 6, Table 7, Table 8 and Table 9.

Exploratory Factor Analysis

Table 5
RESULTS OF KMO AND BARTLETT'S TEST OF SPHERICITY

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.723
Bartlett's Test of Sphericity	Approx. Chi-Square	8983.732
	Df	496
	Sig.	0.000

Table 6
EXPLORATORY FACTOR ANALYSIS RESULTS FOR SERVICE QUALITY ATTRIBUTES

S.N.	Name of Factor	Name of Item	Eigen Value	%age Variance Extracted	Factor Loadings	Reliability
	Employee	Specific needs of customers			0.561	
		Personal attention			0.503	
		Sympathetic and reassuring			0.611	
		Efficient and competent employees			0.545	

1	Performance	Easily approachable employees	10.340	32.311	0.527	0.864
		Courteous, polite, and respectful employees			0.696	
		Helpful employees			0.788	
		Pleasant, caring, and friendly employees			0.698	
2	Transmission Quality	Up-to-date and low congestion network	2.515	7.860	0.617	0.821
		Good call quality			0.761	
		Wide coverage area			0.772	
		Sufficient presence in different geographical areas			0.656	
3	Competitiveness	Competitive services	2.221	6.904	0.569	0.762
		Competitive pricing			0.747	
		Enough variety of pricing plans			0.590	
		Comprehensive and competitive value added services			0.587	
4	Credibility	Accurate records maintained	1.761	5.504	0.619	0.731
		Accurate information			0.624	
		Reputation and image			0.617	
		Innovative and forward looking			0.754	
5	Reliability	Reliability and consistency	1.600	5.000	0.720	0.767
		Promises fulfilled			0.578	
		Trust			0.595	
6	Support Attributes	Employees neat and clean	1.352	4.224	0.587	0.704
		Visually appealing physical facilities of offices			0.573	
		Effective advertisements and promotional campaigns			0.775	
7	Operational Efficiency	First time right service	1.305	4.077	0.795	0.785
		Prompt service			0.502	
		Fast complaint resolution			0.504	
		Accurate and easy to understand billing			0.654	
8	Convenience	Convenient operating hours of company	1.186	3.708	0.815	0.711
		Convenience in taking new mobile connection or recharge			0.682	

Customer Value

Table 7
EXPLORATORY FACTOR ANALYSIS RESULTS FOR CUSTOMER VALUE

S.N.	Name of Factor	Name of Item	Eigen Value	%age Variance Extracted	Factor Loadings	Reliability
1	Customer Value	Overall value	1.554	77.714	0.882	0.704
		Overall ability			0.884	

Customer Satisfaction

Table 8
EXPLORATORY FACTOR ANALYSIS RESULTS FOR CUSTOMER SATISFACTION

S.N.	Name of Factor	Name of Item	Eigen Value	%age Variance Extracted	Factor Loadings	Reliability
1	Customer Satisfaction	Overall satisfied	2.109	70.297	0.800	0.781
		Close to expectations			0.874	
		Comparable with idealmobile phone service provider			0.840	

Customer Loyalty

Table 9
EXPLORATORY FACTOR ANALYSIS RESULTS FOR CUSTOMER LOYALTY

S.N.	Name of Factor	Name of Item	Eigen Value	%age Variance Extracted	Factor Loadings	Reliability
1	Customer Loyalty	Say positive things	4.265	71.413	0.781	0.866
		Encourage friends and relatives			0.782	
		Use same mobile company every time			0.770	
		Intend to continue			0.666	
		Have strong preference			0.735	
		Continue to do business with the same mobile company			0.581	
		Consider prime mobile company			0.684	
		Consider first choice			0.813	

In order to test study hypotheses, PLS SEM was used. PLS SEM is the partial least square method of estimation for structural equation modeling. This multivariate analysis technique helps in estimate direct and indirect effects in terms of path coefficients, which are actually similar to standardized regression coefficients (Kerlinger, 1986).

Structural Equation Modeling

Structural equation modeling is a family of statistical models that try to find the relationships among several variables. In doing so, it investigates the structure of interrelationships expressed in a series of equations, similar to a series of multiple regression equations (Hair et al., 2008).

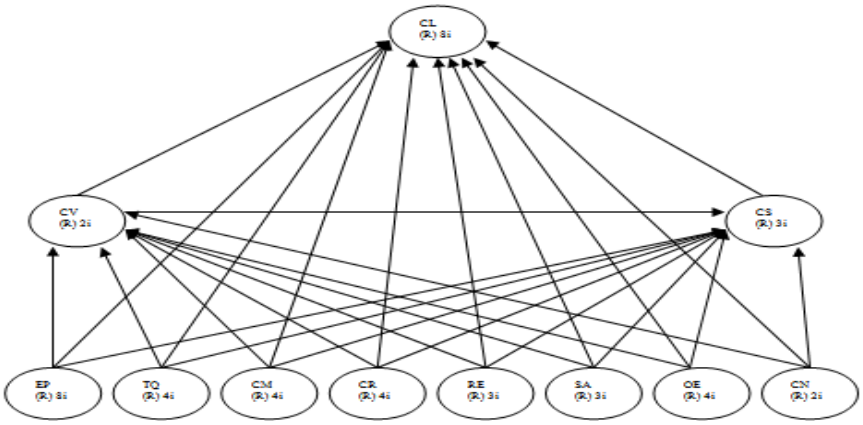

FIGURE 2
THE CURRENT RESEARCH MODEL OF SERVICE QUALITY ATTRIBUTES, CUSTOMER VALUE, CUSTOMER SATISFACTION, AND CUSTOMER LOYALTY

Service Quality Attributes:

1. EP: Employee Performance
2. CM: Competitiveness
3. CR: Credibility
4. RE: Reliability
5. SA: Support Attributes
6. OE: Operational Efficiency
7. CN: Convenience
8. CV: Customer Value
9. CS: Customer Satisfaction CL: Customer Loyalty

To analyze the goodness of fit of the hypothesized model Figure 2, structural equation model was employed. The hypothesized model has service quality attributes as first order construct and three second order construct namely; customer value, customer satisfaction, and customer loyalty. To estimate the structural equation model, Partial Least Square (PLS) method of estimation was employed.

Table 10
LATENT VARIABLE CORRELATIONS

	SQUALITY	CVALUE	SATIS	LOYALTY
SQUALITY	(0.576)	0.594	0.606	0.613
CVALUE	0.594	(0.880)	0.856	0.666
SATIS	0.606	0.856	(0.789)	0.688
LOYALTY	0.613	0.666	0.688	(0.712)

Note: Square roots of Average Variances Extracted (AVE's) shown on diagonal

1. SQUALITY=Service Quality
2. CVALUE=Customer Value
3. SATIS=Satisfaction

According to Hair et al. (2008) variance extraction estimates for two factors should be greater than the square of the correlation between the two factors to provide evidence of discriminant validity.

Table 10 provides evidence for discriminant validity of the constructs as variance extracted for any two constructs like service quality attributes and customer value ($0.42>0.594^2$); service quality attributes and customer satisfaction ($0.80>0.606^2$); service quality attributes and customer loyalty ($0.60>0.613^2$) is greater than the square of the correlation between the two factors.

Table 11
P-VALUES FOR CORRELATIONS

	SQUALITY	CVALUE	SATIS	LOYALTY
SQUALITY	1.000	< 0.001	< 0.001	< 0.001
CVALUE	< 0.001	1.000	< 0.001	< 0.001
SATIS	< 0.001	< 0.001	1.000	< 0.001
LOYALTY	< 0.001	< 0.001	< 0.001	1.000

According nomological validity is tested by examining whether the correlations among the constructs in a measurement theory make sense (Hair et al., 2008). It can be seen from the Table 11 that all the correlations are significant at 1% level. Hence, it passes the test of nomological validity.

TABLE 12
FIT INDICES

INDICES	SQUALITY	CVALUE	SATIS	LOYALTY
R-Squared Coefficients	-	0.424	0.803	0.601
Composite Reliability coefficients	0.940	0.873	0.831	0.877
Average Variance Extracted	0.732	0.774	0.623	0.507

Results of structural equation modeling with Partial Least Square (PLS) method of estimation showed Table 12 that this model has a good fit.
The indices used to arrive at this conclusion includes average path coefficient (APC=0.416, $p<0.001$), Average R Square (ARS=0.609, $p<0.001$), and Average Variance Inflation Factor (AVIF=2.533, Good if< 5).

According to Fornell & Larcker (1981), average variance extracted should be more than 0.5 to address the issue of convergent validity. From the Table 13, the range of AVE varies from 0.507 to 0.774. Therefore study results confirmed that the convergent validity is achieved.

Hypotheses Testing

The exploratory factor analysis results ended into eight factors. By using the thematic analysis, the factors were named as; employee performance, transmission quality, competitiveness, credibility, reliability, support attributes, operational efficiency, and convenience in Figure 3.

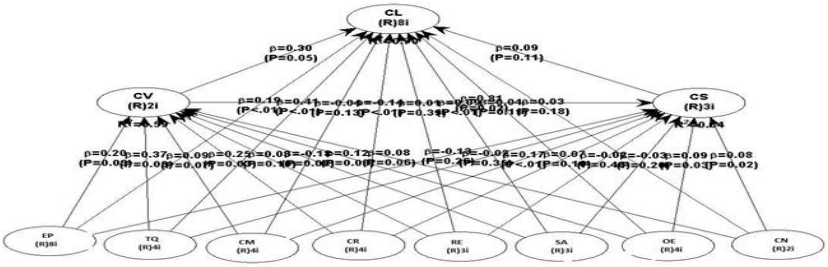

FIGURE 3
PATH ANALYSIS RESULTS

Table 13
SUMMARY OF FINDINGS RELATED TO THE HYPOTHESES

Null Hypothesis	Descriptions	Result	Test of Significance
H1a	EP→CV	Reject	Significant at 5% level
H1b	TQ→CV	Reject	Significant at 5% level
H1c	CM →CV	Reject	Significant at 10% level
H1d	CR→CV	Reject	Significant at 5% level
H1e	RE→CV	Reject	Significant at 10% level
H1f	SA→CV	Reject	Significant at 10% level
H1g	OE→CV	Reject	Significant at 10% level
H1h	CN→CV	Reject	Significant at 10% level
H2a	EP→CS	Accept	Not Significant
H2b	TQ→CS	Accept	Not Significant
H2c	CM →CS	Reject	Significant at 5% level
H2d	CR→CS	Reject	Significant at 10% level
H2e	RE→CS	Accept	Not Significant
H2f	SA→CS	Accept	Not Significant
H2g	OE→CS	Reject	Significant at 5% level
H2h	CN→CS	Reject	Significant at 5% level
H3a	EP-->CV-->CS	Reject	Significant at 5% level
H3b	TQ-->CV-->CS	Reject	Significant at 5% level
H3c	CM -->CV-->CS	Reject	Significant at 10% level
H3d	CR-->CV-->CS	Reject	Significant at 5% level
H3e	RE-->CV-->CS	Reject	Significant at 10% level
H3f	SA-->CV-->CS	Reject	Significant at 10% level
H3g	OE-->CV-->CS	Reject	Significant at 10% level
H3h	CN-->CV-->CS	Reject	Significant at 10% level
H4	CV→CS	Reject	Significant at 5% level
H5	CV→CL	Reject	Significant at 5% level
H6	CV-->CS-->CL	Reject	Significant at 5% level
H7	CS→CL	Accept	Not Significant
H8a	EP→CL	Reject	Significant at 5% level
H8b	TQ→CL	Reject	Significant at 5% level
H8c	CM →CL	Accept	Not Significant
H8d	CR→CL	Reject	Significant at 5% level
H8e	RE→CL	Accept	Not Significant
H8f	SA→CL	Reject	Significant at 5% level
H8g	OE→CL	Accept	Not Significant
H8h	CN→CL	Accept	Not Significant
H9a	EP-->CV/CS-->CL	Reject	Significant at 5% level
H9b	TQ-->CV/CS-->CL	Reject	Significant at 5% level
H9c	CM -->CV/CS-->CL	Accept	Not Significant
H9d	CR-->CV/CS-->CL	Reject	Significant at 5% level

H9e	RE-->CV/CS-->CL	Reject	Significant at 5% level
H9f	SA-->CV/CS-->CL	Reject	Significant at 5% level
H9g	OE-->CV/CS-->CL	Reject	Significant at 5% level
H9h	CN-->CV/CS-->CL	Accept	Not Significant

CONCLUSIONS

This study used exploratory factor analysis to explore factor structure for 32 service quality variables drawn from vast service marketing literature. With the help of principal component analysis method of factor extraction, eight factors were extracted. These eight factors cumulatively explained 69.694% of the total variance with the help of varimax rotation. With reference to path analyses results, support attributes were not found significantly impacting the customer value. Barring this, other 7 factors positively impacted customer value. In terms of relative effects assessment, transmission quality scored highest among 7 factors followed by credibility. Next, results confirmed a significant positive relationship between competitiveness and customer satisfaction, whereas employee performance, transmission quality, and support attributes didn't have positive impacts on customer satisfaction. Findings confirmed significant predictors of customer satisfaction namely; competitiveness, credibility, reliability, operational efficiency, and convenience.
Service quality attributes influenced customer satisfaction indirectly (through customer value). Interestingly, employee performance significantly impacted customer satisfaction through customer value not directly.

The study confirmed significant impact of customer value on customer satisfaction and customer loyalty. The indirect effect of customer value on customer loyalty through satisfaction was also found significant indicates insignificant mediation effect. The relationship between customer satisfaction and loyalty was not found significant. 4 out of 8 service quality attributes confirmed significant direct impact on customer loyalty (employee performance, transmission quality, credibility, support attributes).

Contribution to the Literature

The current research work contributes generously to the body of knowledge. As an integrative model, this study extracted direct and indirect effects of service quality attribute on customer loyalty in mobile telecommunication services context in India. Furthermore, a reliable and valid scale to measure service quality construct with thirty two variables (adopted from literature) was also provided (Reichheld, 2003).

Managerial Implications

The study results brought many useful insights for managers in order to bring effectiveness in their strategies. It is highly recommended that managers must focus on important areas to increase productivity like; employee performance, transmission quality, competitiveness, credibility, reliability, operational efficiency and convenience. In consonance with the results, they need to pay highest attention towards making sure of providing best network quality all the time and to all the customers. This will help subscribers to make congestion free calls with high voice clarity with no call drop problems. In service industry, technology is evolving continuously. Therefore, in order to win the competitive landscape, they need to bring in the latest technology and also work on increasing efficiency and effectiveness in their efforts. Employee performance has been found very-very important. Hence, continuous training and building soft skill among them should be top priority for the organization (Nerurkar, 2000).

Moreover, managers must put efforts in highlighting value in the offerings and at the same time continuous focus on assuring customer satisfaction will automatically ensure loyalty. The assessment of customer value in regular basis is a recipe of guaranteed success (Parasuraman & Grewal, 2000).

Limitations and Scope for Future Research

The primary data used in this study is cross-sectional in nature. This type of data has its own constraints and restricts the generalizability of the study findings. The data doesn't differentiate service providers in public vs. private entities. Therefore, comparison based on this dimensions is not possible. The survey was restricted to one geographical region; hence the application to the entire Indian market is not applicable.

With the background of study limitations, future researchers must reflect on the findings and test the similar model in different geographical context and also across different service setup in order to check for the validity of the outcomes. This study only tested the model based on perceptions of the customers. To broaden horizon, expectation-perception gap can be explored for useful insights. Variable like sacrifice, trust in company / service, corporate reputation etc. can be linked to the model to check the constructive outcomes (Gronroos, 1984).

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