Effect of service quality on customer loyalty and the mediating role of customer satisfaction: an empirical investigation for the telecom service industry

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**Abstract**

**Objective:** The main purpose of this study is to examine the effects of service quality dimensions on customer satisfaction and service loyalty in telecom industry.

**Design/Methodology/Approach:** Service quality, customer satisfaction and service loyalty were measured using 5-point likert scale from the literature. Exploratory factor analysis, confirmatory factor analysis and structural equation modeling were conducted to examine the effects of service quality on customer satisfaction and service loyalty.

**Findings:** Not all dimensions of service quality affect customer satisfaction and service loyalty. Only empathy and reliability have significant effect on customer satisfaction, whereas, empathy, assurance, responsiveness and tangibility have significant effect on customer loyalty. When it comes to mediation, customer satisfaction partially mediates between empathy and customer loyalty.

**Research Limitation/Implications:** The main limitation of the study is that it was confined to the city of Delhi only. India is a big and diverse nation, so the findings of Delhi city cannot be generalized for the entire nation. Secondly, present study focuses only on Telecom Service Industry.

**Practical Implication:** The findings clearly indicate the dimensions of Service Quality which the practitioners has to focus to provide better service quality.

**Keywords:** Service Quality, Customer Satisfaction, Service Loyalty, Indian Telecom Industry.

**Introduction**

Indian Telecom Industry has touched new heights as Indian Government has adopted liberal and reformist policy. With the subscriber base of 1.05 billion, India is second only to China as a telecom market in the world (“Telecom Industry in India,” 2017). “The telecommunication industry contributes 6.5 percent ($140 billion) in GDP which is expected to rise to 8.2 percent by 2020 (“Mobile industry to contribute 8.2% to GDP by 2020: Govt Report: PTI feed, News - India Today,” n.d.). With these kind of figures, Indian telecom industry has become one of the fastest growing industries in India. Among the major telecom players operating in Indian markets are Airtel, Reliance Communications, Vodafone, Tata Indicom, Idea Cellular, Jio, BSNL and MTNL etc.

With an intense competition going on, companies are fighting for their share in the market. Over a period, companies have realized that the key to success is in retaining the customers. With current growth rate and intense competition, there was a need to understand the need of the customers and the companies are doing the same. Companies, which offer services, often find it difficult for customers to evaluate services as services are intangible. Heightened competition and deregulation have led many retail firms to look for profitable ways to differentiate their services. Even when customer is satisfied during one encounter with the service provider, it is particularly difficult for the marketers to provide same level of satisfaction as services are heterogeneous in nature (A.P. Parasuraman, Zeithaml, & Berry, 1988). The challenge, which today’s marketers face, is how to make customers loyal for long-term profit. However, little is known how to make customers loyal (Gremier, Brown, & others, 1996). Thus, identifying the factors important for customers to be brand loyal for an in-service industry is very critical. Present study has been conducted with reference to telecom industry involving 429 respondents from the city of Delhi.

21st century is characterized by less of product differentiation between the products/services offered by companies, more demanding customers and cost optimization by companies. In such a scenario, customer loyalty is the key for success in business. According to Edward & Sahadev (2011); Kotler (2010); Reichheld & Schefter (2000), cost of attracting new customers is 5 times more than the cost of retaining old customers. In such a scenario, customer loyalty is the key for the business success.

The purpose of this study is to expand our knowledge by examining the effects of Service Quality Dimensions on Customer Satisfaction and Customer Loyalty. The focus of the study is to identify the mediating role of Customer Satisfaction between Service Quality and Customer Loyalty, if any.
Effect of service quality on customer loyalty and the mediating role of customer satisfaction

Review of Literature

Oliver (1980) in his theory “Disconfirmation of Expectation” opined that customer is satisfied when expectation matches or performance of the product exceeds the expectation of the customer and dissatisfied when expectations exceed the performance of the customer. According to Zenithal (2017), services are judged based on the beliefs about the service delivery which forms the benchmark. Harr (2008) argued that measuring customer satisfaction can be difficult as customer expectations are formed from the personal experiences of consumption and can be highly personalized.

Harr (2008) criticized the theory of disconfirmation as the theory fails to look into the complexities. There are many factors on which the satisfaction of the customer depends for a particular product. Customer may be satisfied on one aspect and dissatisfied on the other aspect leading to conflict about the overall product.

According to Vargo, Nagao, He & Morgan (2007), various components of the product effect the customer in different ways.

Service Quality

Service Quality is the concept of competitiveness and it has generated enough interest in academicians and researchers as it is difficult to define and measure service quality. No clear consensus has been built up on the definition of service quality (Wisniewski, 2001).

Traditionally, service quality has been explained as the gap between customer expectation about the service and perception of how the service has been performed (A. Parasuraman, Berry, & Zeithaml, 1991; A. P. Parasuraman et al., 1988). Based on this theory, A.P. Parasuraman et al. (1988) developed SERVQUAL scale consisting of 5 dimensions (tangibility, responsiveness, reliability, assurance and empathy). SERVQUAL measurement was offered as it can be used to explain service quality of any service firm and this led to its vast usage. (Dabholkar, Thorpe & Rentz, 1996). These researches conclude that gaps can be easily identified once the difference between expectation and perception is figured out (Wang, Lo & Yang, 2004). However, many researchers have raised questions over the SERVQUAL model. Many researchers have compared SERVPERF model with SERVQUAL and pointed that SERVPERF is a better model (Boulding, Kalra, Staelin, & Zeithaml, 1993; Cronin & Taylor, 1992). In response to the criticism of the SERVQUAL model, A. Parasuraman, Zeithaml, & Berry (1994) have made several key changes to the model. However, for the present study, we have used the old model.

Customer Loyalty

Customer loyalty is central to many marketing models such as service-profit chain (Anderson & Mittal, 2000), brand equity (Yoo & Donthu, 2001), customer equity (Rust, Zeithaml, & Lemon, 2000) and service recovery (Orsingher, Valentini & Angelis, 2010). Moreover, service quality and customer satisfaction are predecessor to customer loyalty (Bolton, Kannan, & Bramlett, 2000; Zeithaml, Berry, & Parasuraman, 1996).

Perhaps the most convincing definition of customer loyalty has been given by Oliver (2010). He defined loyalty as “deeply held commitment to rebuy or repatronize a preferred product or services consistently in the future, thereby causing repetitive same brand or same brand-set purchasing, despite situational influence and marketing efforts having the potential to cause switching behavior.” According to Dick & Basu (1994), customer loyalty is formed by attitude and behavior components. Loyalty in terms of behavior can be described as the present behavior towards the product of interest (Wolter, Bock, Smith & Cronin, 2017), whereas, loyalty in terms of attitude can be termed as a behavior to act in a positive way towards loyalty products (Oliver, 1999).

Heskett, Jones, Loveman, Sasser & Schlesinger (1994) proposed that high quality service is required for customer satisfaction and satisfied customers tend to be loyal customers. Companies can become profitable by having more loyal customers as the loyal customers will decrease the operating cost and overall expenses (Copacino, 1997; Ladhari, Souiden, & Ladhari, 2011). Many researchers were able to link customer loyalty with the organization success (Rasheed & Abadi, 2014).

Research Methodology

Sampling Procedure

515 respondents were surveyed. 86 samples were discarded for response error and only 429 were used for the study. Convenience sampling was used for the present study. Further, data was collected from non-business telecom service users.

![Fig. 1: Proposed Model](image-url)
Table 1: Demographic Profile of the Respondents

<table>
<thead>
<tr>
<th>Age</th>
<th>No. of Respondants</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-26</td>
<td>108</td>
<td>25.17%</td>
</tr>
<tr>
<td>27-36</td>
<td>114</td>
<td>26.57%</td>
</tr>
<tr>
<td>37-46</td>
<td>106</td>
<td>24.71%</td>
</tr>
<tr>
<td>47-56</td>
<td>76</td>
<td>17.72%</td>
</tr>
<tr>
<td>above 56</td>
<td>25</td>
<td>5.83%</td>
</tr>
</tbody>
</table>

Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>No. of Respondants</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>220</td>
<td>51.28%</td>
</tr>
<tr>
<td>Female</td>
<td>209</td>
<td>48.72%</td>
</tr>
</tbody>
</table>

Design of Survey Instrument

The questionnaire was designed in four parts that were associated with Service Quality, Service Loyalty, Customer Satisfaction and Demographic profile of the respondents. Part A consisted of service quality scale. The scale was adopted from A. P. Parasuraman et al. (1988) and suitably modified for the study. Part B consisted of service loyalty scale adopted from Gremler et al. (1996) and was suitably modified. Part C was designed to study customer satisfaction scale and was adopted from Bitner and Hubbert (1994). In Part D, information was gathered about the demographic profile of the respondents.

Analysis

Variable Tangibility had 2 missing values, Reliability had 8 missing values and Service Loyalty had 11 missing values. Since all above-mentioned variables were measured using 5-point Likert scale, data for the variables was imputed using median.

Exploratory Analysis

An exploratory factor analysis was conducted on 38 items. Seven factors were extracted with Eigen value >1 explaining 67.59% of variance.

Table 2: KMO and Bartlett Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>Bartlett's Test of Sphericity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Approx. Chi-Square</td>
</tr>
<tr>
<td></td>
<td>df</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
</tr>
<tr>
<td></td>
<td>10213.749</td>
</tr>
<tr>
<td></td>
<td>703</td>
</tr>
<tr>
<td></td>
<td>.000</td>
</tr>
</tbody>
</table>

Kaiser Meyer Olkin (KMO) and Bartlett test was used to verify the appropriateness of Factor Analysis. KMO value greater than .80 is considered meritorious (Hair, Black, Babin, & Anderson, 2010). From Table 2, it can be seen that value of KMO is acceptable. Bartlett test confirmed the correlation among the variable (p<.05), required for factor analysis.

Further items were subjected to Principal Component Analysis (PCA) with varimax rotation. Seven factors were extracted with Eigen value >1 explaining 67.59% of variance.

Table 3: Factor Loadings

<table>
<thead>
<tr>
<th>S.No</th>
<th>Dimension</th>
<th>Loading</th>
<th>Cronback alfa</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Believe my present telecom service provider is a good service provider</td>
<td>.747</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Seldom consider switching away from present telecom service provider</td>
<td>.726</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>My first choice when I need my present telecom service provider</td>
<td>.726</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Doubt that I would switch to another telecom service provider</td>
<td>.725</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Try to use present telecom service provider every time I need services</td>
<td>.701</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>To me, my present telecom service provider is clearly best to do business with</td>
<td>.699</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Encourage friends and relatives to do business with my present telecom service provider</td>
<td>.687</td>
<td>0.933</td>
</tr>
<tr>
<td>8</td>
<td>Consider my present telecom service provider as my primary service provider</td>
<td>.686</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Say positive things about the service of my telecom service provider to other people</td>
<td>.681</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Really like doing business with my present telecom service provider</td>
<td>.678</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Primary place where I consider when I want to use my present telecom service provider</td>
<td>.672</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Intent to continue doing business with present telecom service provider</td>
<td>.656</td>
<td></td>
</tr>
</tbody>
</table>

Empathy
It is unrealistic to expect employees to know what the need of their customers are.

They shouldn’t be expected to have opening hours convenient to all their customers.

These firms should not be expected to give customers individual attention.

Employees of these firms cannot be expected to give customer personal attention.

It is unrealistic to expect these firms to have their customer’s best interest at heart.

Customers should be able to feel safe in their transactions with these firm employees.

Their employees should get adequate support from these firms to do their job well.

Customers should be able to trust employees of these firms.

Their employees should be polite.

These firms should be dependable.

When customers have problems, these firms should be sympathetic and reassuring.

They should provide their services at a time they promise to do so.

When these firms promise to do something by a certain time, they should do so.

They should keep their records accurately.

Compared to other telecom service provider you have done business with the present telecom is better.

Based on all my experiences, I am not satisfied.

In general, I am satisfied.

Based on all your experiences, how satisfied overall are you.

It is not realistic for customers to expect prompt service from employees of these firms.

They should not be expected to tell the customers exactly when the services will be performed.

Their employees do not always have to be willing to help customers.

It is okay if they are too busy to respond to customers request promptly.

Their physical facilities should be visually appealing.

Their employees should be well dressed and appear neat.

The appearance of the physical facilities of these firms should be in keeping with the type of service provided.

They should have up-to-date equipment.

Reliability

Cronback alfa is used to measure the consistency of the scale. Cronback alfa value of greater than .7 is acceptable (Hair, Black, Babin, & Anderson, 2010). From the Table 3, it can be seen that cronback alfa values were greater than .7 for all the constructs.

Validity

Content Validity

Content Validity is used to measure the degree by which the elements represent the construct. For the present study, content validity was ensured as service quality dimensions, service loyalty dimensions and customer satisfaction dimensions were identified from literature and were examined by experts and academicians.
Convergent Validity
Convergent validity can be identified with the help of factor loading. If factor loading is greater than or equal to .07, then sufficient convergent validity is demonstrated (Hair, Black, Babin, & Anderson, 2010). All factor loading was higher than .7 signifying sufficient convergent validity.

Discriminant Validity
It is the extent to which constructs are distinct from other constructs (Hair, Black, Babin, & Anderson, 2010). The correlation between the factor was less than .7 showing sufficient discriminant validity and there were no cross loadings.

Confirmatory Factor Analysis
Confirmatory Factor Analysis was conducted. All values were in the accepted range. However, value of Root Mean Square Error of Approximation (RMSEA) which is recommended to be below .50 was exactly .50. No treatment was given to improve the model as the value is very close to the recommended level.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Observed Value</th>
<th>Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>2.310</td>
<td>1.3</td>
</tr>
<tr>
<td>CFI</td>
<td>.926</td>
<td>&gt;.95</td>
</tr>
<tr>
<td>GFI</td>
<td>.851</td>
<td>&lt;.80</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.051</td>
<td>&lt;.50</td>
</tr>
</tbody>
</table>

The value of CFI was below 0.95. The value of RMSEA was 0.51 and the desirable value is below 0.5. However, both values were close to the recommended value and, therefore, no treatment was given to data.

Validity and Reliability
To test convergent validity, value of AVE was calculated for each construct. All values of AVE were above 0.50. To test discriminant validity, following conditions should be met:
1. Average Variance Explained (AVE) > Maximum Shared Variance (MSV)
2. Average Variance Explained (AVE) > Average Shared Variance (ASV)

By observations, for all the constructs, both conditions were met and there was no issue of discriminant validity. Composite reliability was also tested and it was found to be above .7 for all the constructs.

Hypothesis
H1: Service Quality has a positive effect on Customer Satisfaction.
H1a: Empathy has a positive effect on Customer Satisfaction.
H1b: Reliability has a positive effect on Customer Satisfaction.
H1c: Assurance has a positive effect on Customer Satisfaction.
H1d: Responsiveness has a positive effect on Customer Satisfaction.
H1e: Tangibility has a positive effect on Customer Satisfaction.
H2: Service Quality has a positive effect on Service Loyalty.
H2a: Empathy has a positive effect on Service Loyalty.
H2b: Reliability has a positive effect on Service Loyalty.
H2c: Assurance has a positive effect on Service Loyalty.
H2d: Responsiveness has a positive effect on Service Loyalty.
H2e: Tangibility has a positive effect on Service Loyalty.
H3: Customer Satisfaction has a positive effect on Service Loyalty.
H4: Customer Satisfaction positively and fully mediates the positive relationship between Service Quality and Service Loyalty.

Structural Model

Table 5: Hypothesis

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Evidence</th>
<th>Conclusion</th>
</tr>
</thead>
</table>
| H1a: Empathy has a positive effect on Customer Satisfaction. | Beta = .169  
  p = .000 | Supported  |
| H1b: Reliability has a positive effect on Customer Satisfaction. | Beta = -.180  
  p = .000 | Supported  |
| H1c: Assurance has a positive effect on Customer Satisfaction. | Beta = .102  
  p = .103 | Not supported |
H1d: Responsiveness has a positive effect on Customer Satisfaction.  
\[ \text{Beta} = 0.013, \text{ P} = 0.805 \]  
Not supported

H1e: Tangibility has a positive effect on Customer Satisfaction.  
\[ \text{Beta} = 0.057, \text{ P} = 0.237 \]  
Not supported

H2a: Empathy has a positive effect on Service Loyalty.  
\[ \text{Beta} = 0.000, \text{ P} = 0.000 \]  
Supported

H2b: Reliability has a positive effect on Service Loyalty.  
\[ \text{Beta} = 0.000, \text{ P} = 0.993 \]  
Not supported

H2c: Assurance has a positive effect on Service Loyalty.  
\[ \text{Beta} = 0.478, \text{ P} = 0.000 \]  
Supported

H2d: Responsiveness has a positive effect on Service Loyalty.  
\[ \text{Beta} = 0.093, \text{ P} = 0.001 \]  
Supported

H2e: Tangibility has a positive effect on Service Loyalty.  
\[ \text{Beta} = 0.063, \text{ P} = 0.011 \]  
Supported

H3: Satisfaction has a positive effect on Loyalty  
\[ \text{Beta} = 0.525, \text{ P} = 0.000 \]  
Supported

H4: Satisfaction positively mediates Empathy and Loyalty  
Standardized indirect effect: 0.156, \( \text{P} = 0.001 \)  
Partial Mediation

### Mediation Model

![Mediation Model](image)

**Fig. 3: Mediation Model**

In absence of mediator i.e. “Satisfaction”, effect of Empathy on Loyalty was tested and was found to be significant, \( \text{beta} = 0.454, \text{ p}<0.05 \). Indirect effect was checked in presence of mediator and was found to be significant \( \text{beta}=0.156, \text{ p}<0.05 \). Since the relationship between Empathy and Loyalty was significant even in the presence of mediator, it was considered to be a case of partial mediation.

### Conclusion

The present study was conducted to find out the relationship of service quality dimensions on Customer Satisfaction and Service Loyalty in the Indian Telecom Industry. The present study highlights that although service quality is made up of five dimensions. However, when it comes to Indian Telecom Industry, not all dimensions affect customer satisfaction and Service Loyalty. Only Empathy and Reliability have significant effect on Customer Satisfaction, whereas, Empathy, Assurance, Responsiveness and Tangibility have significant effect on Customer loyalty. When it comes to mediation, Customer Satisfaction partially mediates between Empathy and Customer Loyalty. The present study clearly highlights the dimensions on which the
practitioner needs to focus while trying to serve customers. Many researchers have criticized SERVQUAL scale. In spite of all the criticism, SERVQUAL scale remains the most used scale in the area of service industry. Future researches in the same field can focus on SERVPF scale, which has been projected as a substitute to the SERVQUAL scale. Apart from using SERVPERF scale, Indian service industry in on the rise and there are sectors other than the telecom which need to be studied in detail.

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