CHAPTER - III
RESEARCH METHODOLOGY

INTRODUCTION

With an aim to identify the dependent and independent variables involved in this study a brief survey of literature on the various aspects of research problems has been conducted visa a visa in the previous chapter. The present chapter is devoted to explain in detail the research methodology adopted in the present investigation. In specific, it details on the research framework, research design, sampling plan, data collection methods/instrument, data analysis and the validity and reliability of the research instrument being used are elucidated to ensure the suitability of the research instrument used in this study.

Research is a systematic method of finding solutions to problems. It is essentially an investigation coupled with recording and analysis of evidences for the purpose of gaining new knowledge about the phenomenon under study. According to Clifford Woody, “Research comprises of defining and redefining problem, formulating hypothesis or suggested solutions, collecting, organizing and evaluating data, reaching conclusions, testing conclusions to determine whether they fit into the formulated hypothesis”

3.1 PROBLEM IDENTIFICATION

Here the problem undertaken is the alarming situation of wearing away of customer base from BSNL land line services due to the entry of private operators after the Government’s decision to liberalise and open up the economy in the year 1992 to all those eligible and competent private sector entities, willing to participate in bridging the gap through government spendings and to provide additional resources for the Nation’s Telecom network and infrastructure in achieving the set targets and objectives. Therefore, it is felt necessary to analyse the various determinants/factors that would attract the customers to prefer to avail the services of BSNL. Once after the confirmation of the significance of the determinants, the department should endeavour on formulating proper strategies to capitalize the opportunity by making them more attractive and value adding, as it would help in retaining the existing customers to its base who contribute to 80% of its revenue.
3.2 IMPORTANCE OF THE STUDY

India is a fast developing country. It is the seventh-largest country by geographical area, the second-most populous country with over 1.2 billion people, and the most populous democracy in the world. Bounded by the Indian Ocean on the south, the Arabian Sea on the southwest, and the Bay of Bengal on the southeast, it shares land borders with Pakistan to the west; Bhutan, the People's Republic of China and Nepal to the northeast; and Bangladesh and Burma to the east. In the Indian Ocean, India is in the vicinity of Sri Lanka and the Maldives. In addition, India's Andaman and Nicobar Islands share a maritime border with Thailand and Indonesia.

The Indian economy is the world's tenth largest economy by nominal GDP and fourth largest economy by purchasing power parity. Following market-based economic reforms in 1991, India has become one of the fastest growing major economies, and is considered a newly industrialized country; however, it continues to face the challenges of poverty, illiteracy, corruption and inadequate public health. A nuclear weapons state and a regional power, it has the third-largest standing army in the world, and ranks tenth in military expenditure among nations. India is a federal constitutional republic with a parliamentary democracy consisting of 28 states and seven union territories. It is one of the five BRICS nations.

Until 1991, all Indian governments followed protectionist policies that were influenced by socialist economics. Widespread state intervention and regulation caused the Indian economy to be largely closed to the outside world. After an acute balance of payments crisis in 1991, the nation liberalised its economy and has since continued to move towards a free-market system, emphasizing both foreign trade and investment. Consequently, India's economic model is now being described overall as capitalist.

Government’s policy allowing the entry of private operators into the telecom sector has resulted in these players making inroads into both basic service operation as well as cellular services all over India.
The other Basic service providers at Coimbatore are BSNL, Reliance Communications, Bharti Airtel and TATA Teleservices. Being new entrants in the communication field every means is adopted by the private operators to attract the customer by offering them a variety of tariff options, discounts, gifts and promises of better service, as they have to build their subscriber base.

In the wake of above developments, it was felt pertinent and significant to undertake this study which is all the more important to help BSNL to vie with these new entrants to retain its top market place and position that was being enjoyed all these days since it was a monopoly.

3.3 NEED FOR THE STUDY

In this competitive scenario it is very much essential for the Indian Telecommunication Industry to pinpoint various strategies to edge over the world class competition to keep up its thrust forward to achieve the required level of growth in terms of its subscriber base (DEL) and its teledensity, which is the measure of the growth of technological development worldwide.

Therefore, it is felt necessary to analyse the significance of various determinants that would attract the customers to prefer the services of BSNL. Once after confirmation of the importance of the determinants, the department should concentrate on formulating proper strategies to make them more attractive and value adding, as it would help in retaining its existing customers in its base who contribute to 80% of its revenue.

This will help in analyzing the fact, where we stand and do all the needful to cater to the need of ever-growing demand of DEL in a meticulous manner. It also helps in analysing the significance of determinants that influences the customers to prefer BSNL services over other competitors and formulate strategies to edge over the competition in telecommunication Industry that will contribute to the overall growth and transformation of BSNL Coimbatore.
3.4 SCOPE OF THE STUDY

✓ This study would lay concrete on how far BSNL is effective in attracting and retaining customers. It enables the researcher to identify the areas in which suitable methods and strategies to be developed to improve their customer satisfaction leading to a stronger relationship.

✓ This study is conducted to explore the idea about the importance of various determinants in influencing customer preference towards telecommunication services of BSNL Coimbatore.

✓ Best trade practices can be developed by formulating appropriate strategies for improving the present system of doing business for the retention of existing customers who contribute to the maximisation of profit and wealth of BSNL Coimbatore that caters to the fulfillment of the objectives and goals of all stakeholders, protecting their interest.

3.5 OBJECTIVES OF THE STUDY

The objectives of the study are as follows.

1) To study the determinants/factors influencing the customer preferences towards BSNL services of Coimbatore.

2) To study the influence of demographic factors on the determinants impacting customer preferences towards BSNL services of Coimbatore.

3) To study the service availing involvement and attitude of the customers towards Services of BSNL Coimbatore.

4) To study the value quotient/proportion and basic personality trait of the customers availing Services of BSNL Coimbatore.
3.6 TYPE OF RESEARCH

The type of research adopted in this study is Pure or Basic Research with descriptive nature which is done for gaining and enhancing new knowledge about importance of various determinants that would attract the customers in preferring the services of BSNL.

The outcomes of the research does not have immediate commercial potential as there is no obvious commercial value to the discoveries that result from basic research. The main motivation of this research is to expand man's knowledge and not to create or invent something. But it is an agreed fact that the basic research lay down the foundation for the applied research. Dr. G. Smoot says “People cannot foresee the future well enough to predict what is going to develop from the basic research”

3.7 RESEARCH DESIGN

A research design is stated to be the arrangement of conditions for collection and analysis of data in a manner that aims at combining relevance to the research purpose, with economy in procedure. In fact, the research design is the conceptual structure through which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of the data. A research design specifies the methods and procedures for conducting a research work. According to Kerlinger (1983), “Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers for research questions”.

Green and Tuel (1970) define that a “research design is the specification of methods and procedures for acquiring the information needed for the study. It is the overall operational pattern or framework of investigation that stipulates what information is to be collected from which sources and by what procedure” Uma Sekaran (2009). Descriptive research describes what exists and may help to uncover new facts and meaning. The type of research design adopted and used in this study is descriptive type. Here the researcher has absolutely no control over the variables under study but has endeavoured to measure the variations caused by the independent variables on the dependent variables and the probable impacts created by them on the services of BSNL, Coimbatore.
3.7.1 Target Population

The target population of this study is 2.25 lakhs of customers of BSNL, Coimbatore with various demographic and service factors videlicet gender, sex, marital status, age group, income group, employment group, type of service, frequency of service, expenditure pattern, etc who helped in the successfully completion of this survey through the research instrument. Thus this study aims at examining the degree of importance of various determinants of customer preference towards BSNL service of Coimbatore. The researcher considers this perception as a very much valued and supported form of compilation of facts and figures.

3.7.2 Sample Size

A suitable sample size was calculated by using popular sample size calculator in the following manner.

\[
\text{Sample Size} = \frac{Z^2 \times (p) \times (1-p)}{c^2}
\]

Where:

\(Z = Z\) value (e.g. 1.96 for 95% confidence level)

\(p = \) percentage picking a choice, expressed as decimal

(.5 used for sample size needed)

\(c = \) Sampling error, expressed as decimal

(e.g., .05 = ±5%)

Substituting the above values we get Sample Size = 384

<table>
<thead>
<tr>
<th>Actual Sample Size =</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 + (\frac{\text{Sample Size} - 1}{\text{Population Size}})</td>
<td>Sample Size</td>
</tr>
</tbody>
</table>

56
Further taking the target Population Size as 2,25,000 with BSNL service users and calculating the Actual Sample Size, it works out to 383.9 which is approximately equal to 384. Taking 50% customer preference for BSNL services as the worst case scenario with 95% confidence level and 5% error value on sampling, for Coimbatore target Population Size of 2,25,000, thus a sample size of 384 was arrived. To improve the accuracy rate of research a sample size with 500 BSNL customers were chosen in place of calculated sample size of 384. To do the survey entire Coimbatore region was divided into 5 clusters namely East, West, South, North and Central area with 100 samples each to have equal representation from all the areas to ensure proper representation of entire population. The research was conducted to assess the importance of determinants/factors influencing the preference of customers with regard to BSNL services.

3.7.3 Sampling Design

Here the universe being the users of BSNL Landline services and residents of Coimbatore urban area comprising of 5 clusters namely East, West, South, North and Central region, divided as per the geographical region by the district administration of Coimbatore with a population size of 34,72,578 out of which the target Population Size of 2,25,000 of BSNL service users.

The sampling technique adopted is simple random probability sampling by way of random number method where each and every element of the population is having an equal and fair chance of getting selected. To conduct this study, the telephone directory released by BSNL Coimbatore was used as the source of data and the landline customers were selected randomly area wise as discussed above and the questionnaires were circulated to the customers and the responses obtained from them were duly recorded for further analysis.

To do the survey efficiently and effectively 5 persons with adequate research knowledge were engaged for each area on payment basis and each were asked to collect 100 responses randomly from their area of survey.
3.7.4 Sources of Data Collected

Primary data:

A primary study was conducted by devising a questionnaire to identify the determinants/factors towards customer preferences of BSNL services at Coimbatore. A suitable sample size was calculated by using popular sample size calculator as explained/shown in section 3.7.2. To do this survey the entire Coimbatore region was divided into 5 clusters namely East, West, South, North and Central area with 100 samples each to have equal representation from all areas totaling 500 samples to ensure proper representation from entire population.

Secondary data:

Also, the study has been conducted by reviewing various reports, books, journals, records and articles related to this topic and aimed at analysing the determinants/factors that has influenced the customers to prefer BSNL services to contribute to the overall growth and transformation of BSNL that has taken place in the telecommunication industry in Coimbatore.

The research involved the following stages

- A questionnaire was prepared and a pilot study was conducted on 12 informants.
- From the replies and inputs provided, the questions were modified to arrive at the final questionnaire (refer Annexure-I) to suit the researcher’s requirements.
- Then informants were selected randomly from each area belonging to landline user categories as mentioned above.
- The primary as well as secondary data were collected and analysed to achieve the objectives mentioned in the study from the informants, BSNL officers, websites of service providers, etc
3.8 TYPES OF VARIABLES USED IN THIS STUDY

3.8.1 Dependent Variables

A Dependent variable is defined as any parameter that will assume different values at different point of time for the same object or person, or the values can differ at the same times for different object or person. Here the dependent variables are the 13 numbers of different determinants with 62 items posed in the Questionnaire Booklet.

1. Quality of Product/Service
2. Assortment of Product/Service
3. Fashion of Product/Service
4. Price of Product/Service
5. Service Personnel
6. Location conveniences
7. Other Convenience Factors
8. Product/Services
9. Service Promotions
10. Advertising & Brand Image
11. Service outlet atmosphere
12. Reputations on Adjustments
13. References from friends about the Service Provider

These were proposed by the customers of BSNL themselves during the pilot study as determinants/factors of customer preference towards BSNL services and also taken from the previous researches as discussed in Chapter II. Also in Part-III to elicit the information about the Service Availing Involvement of customers with BSNL, the 5 numbers of factors with 23 items posed in the Questionnaire serves as the dependent variable namely

1. Attitude towards availing Telecom Services
2. Telecom Services and Information Search
3. Risk of wrong Selection
4. Telecom Services and Emotions
5. Telecom Services and Personality
In Questionnaire Booklet Part-IV to elicit the information about the value proposition/quotient of customers of BSNL, with the 10 numbers of factors on Terminal values and 10 numbers of factors on Instrumental values in the Questionnaire serves as the dependent variable. In Questionnaire Booklet Part-V to elicit the information about the basic Personality/attitude traits of customers of BSNL with the 15 numbers of factors on, Semantic Differential Scaling technique in the Questionnaire (refer Annexure-I) serves as the dependent variable.

3.8.2 Independent Variables

Here the independent variables are the opinions and ratings given by the sample of 500 respondents from different walks of life with different demographic profiles elicited through the Questionnaire Booklet (refer Annexure-I), Part- I & II. Here the researcher has absolutely no control over the respondents on their responses, ratings, preferences and opinions casted upon except the clarification on questions if any sought by them with a holistic view to throw more clarity on the issue in order to minimize the error which may tend to affect the quality of the outcome of the results of the research.

3.9 VALIDITY

According to Churchill and Brown (2004), “Content validity is the adequacy with which the important aspects of the characteristics are captured by the measure” (Churchill & Brown, 2004, p.333). Simply, the content validity ensured the instrument fully included the important features of the construct that was being measured. To achieve the content validity, a review of literature was conducted to find the important variables related to the constructs of problems vis-à-vis various determinants that influence the customer preferences towards availing BSNL services in Coimbatore. A pilot questionnaire was prepared and presented for review by professionals and customers in relevant field and the corrections and adjustments were made according to their suggestions and requirements of the study.
3.10 RELIABILITY

Churchill and Brown, (2004, p. 335) defined reliability as, “An ability of a measure to obtain similar scores for the same object, trait, or construct, across time, across different evaluation or across the items forming the measure”. They also explained the two types of reliability which were an inter-judge reliability and an internal consistency. The inter-judge reliability of a measure was operated when different subjects evaluated a single object. An internal consistency was another reliability used to determine the correlation of items in the measure. This study observes only the internal consistency because the study asked for a score from each respondent toward a statement. The internal consistency allowed the researcher to check if each respondent’s scores of different parts in the measurement appeared in a similar pattern. The coefficient alpha, generally known as Cronbach’s alpha, indicated that the internal consistency existed. Nunnally (1978, p. 245) as cited in Pedhazur & Schmelkin (1991) suggested “reliabilities of 0.7 or higher will suffice.” Thus, the greater the coefficient alpha is, the more reliable the measurement will be.

Cronbach’s Alpha Test on the reliability of the Research Instrument

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Factors</th>
<th>Name of Determinant/Construct</th>
<th>CRONBACH'S ALPHA MEASUREMENT</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Quality of Product/Service</td>
<td>0.19853</td>
<td>0.44926</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Assortment of Product/Service</td>
<td>0.25226</td>
<td>0.4520</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Fashion of Product/Service</td>
<td>0.267</td>
<td>0.51147</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Price of Product/Service</td>
<td>0.13264</td>
<td>0.54884</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Service Personnel</td>
<td>0.27194</td>
<td>0.64692</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Location conveniences</td>
<td>0.2948</td>
<td>0.58673</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Other Convenience Factors</td>
<td>0.231</td>
<td>0.58155</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Product/Services</td>
<td>0.0101</td>
<td>0.43810</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Service Promotions</td>
<td>0.1952</td>
<td>0.67164</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Advertising &amp; Brand Image</td>
<td>0.23125</td>
<td>0.49349</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Service outlet atmosphere</td>
<td>0.1826</td>
<td>0.49513</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Reputations on Adjustments</td>
<td>0.33853</td>
<td>0.64348</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>My friends and the Service Provider</td>
<td>0.098</td>
<td>0.45464</td>
</tr>
</tbody>
</table>
Cronbach's Alpha on overall reliability of the Research Instrument

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.985</td>
<td>0.990</td>
<td>13</td>
</tr>
</tbody>
</table>

Cronbach's Alpha value & inference on internal consistency

<table>
<thead>
<tr>
<th>Cronbach's alpha</th>
<th>Internal consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha \geq 0.9 )</td>
<td>Excellent</td>
</tr>
<tr>
<td>( 0.8 \leq \alpha &lt; 0.9 )</td>
<td>Good</td>
</tr>
<tr>
<td>( 0.7 \leq \alpha &lt; 0.8 )</td>
<td>Acceptable</td>
</tr>
<tr>
<td>( 0.6 \leq \alpha &lt; 0.7 )</td>
<td>Questionable</td>
</tr>
<tr>
<td>( 0.5 \leq \alpha &lt; 0.6 )</td>
<td>Poor</td>
</tr>
<tr>
<td>( \alpha &lt; 0.5 )</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

The tables in the previous page and above interpret the reliability analysis of the collected data which reveals that the scales had an internal consistency supported by highly satisfied alpha value. The Cronbach’s alpha for the 13 determinants/factors ranges from 0.884 to 1.00 and from 0.901 to 1.00 for normal and standardized values. The overall value for the same is 0.972 rating of 0.998, suggests that the constructs measures are deemed reliable.

3.11 HYPOTHESES OF THE STUDY

A hypothesis is a preliminary or tentative explanation or postulate by the researcher of what that researcher consider the outcome of an investigation will be. It is an informed/educated guess. It indicates the expectations of the researcher regarding certain variables. It is the most specific way in which an answer to a problem can be stated.
The Hypotheses are the specific testable prediction made about the independent and dependent variables in the study. Hypotheses are couched in terms of particular independent and dependent variables that are going to be used in the study.

The research hypothesis for the above research model is stated below:

H$_{10}$: There is no significant influence of the determinants on the customer preferences towards BSNL services of Coimbatore.

H$_{20}$: There is no significant influence of demographic factors on the determinants impacting customer preferences towards BSNL services of Coimbatore.

H$_{30}$: There is no significant influence on the service availing involvement by the attitude of the customers towards Services of BSNL Coimbatore.

H$_{40}$: There is no significant difference on the value quotient/proportion and basic personality trait of the customers availing Services of BSNL Coimbatore.

### 3.12 TOOLS AND TECHNIQUES USED FOR DATA ANALYSIS

Various hypothesis/statistical tests were conducted on the data collected to arrive at the findings and conclusions.

[i]. Percentage Analysis.

[iii]. Chi-Square Analysis

[iii]. Kolmogorov Smirnov Test

[iv]. Analysis of Variance(ANOVA)

[v]. Weighted Average Analysis

[vi]. Z-Test for proportion

[vii]. Paired t-Test

[viii]. Test For Reliability (Cronbach's Alpha Test)

[ix]. Carl Pearson’s Correlation Analysis

[x]. Rokeach Technique

[xi]. Semantic Differential Scaling Technique
3.13 LIMITATIONS OF THE STUDY

The research has the following limitations.

➢ This is the area in which no prior research has been conducted exactly on the same topic.

➢ Even though the study is all about finding the cause and solution to the declining trend of landline growth in Telecommunication Industry, due to various resource constraints, the services of BSNL alone was surveyed and this study may not be applicable for other operators of Telecommunication Industry.

➢ The study was conducted based on the survey done in the urban Coimbatore region and thus it may not be applicable to other parts of India.

➢ The statistical information collected for the research and analysis through secondary source portrays the figures till December 2012.

➢ Due to time and other resource constraints the survey was restricted with a sample size of 500 informants of BSNL customers which is an ideal sample size as per the sample size calculator depicted in section 3.7.2.

➢ The study assumes that all responses were provided correctly by the respondents after understanding the question in the right sense and context, which may not be the case as it depends on the respondents’ perception of the question.

➢ There is no way of finding out whether a customer’s preference will also result in a similar service availing behaviour as some customer may not convert their preferences into action.

3.14 EXPECTED OUTCOMES OF THE STUDY

✓ This study would throw light on where services of BSNL would stand and its effectiveness in attracting and retaining the customers. It enables the researcher to identify the areas and the causes for gaps and suggest them to formulate suitable strategies to improve their services.
This study will help in exploring the importance and influence of various determinants of customer preference towards telecommunication services of BSNL Coimbatore.

This study would create awareness among the entrepreneurs and business planners who are already into this business as well as for the new entrants to have an idea and understanding about the impact of determinants as discussed in this study, in influencing the interest of the customers towards preferring a particular vendor i.e., BSNL services in India.

To put it in a nutshell that this study would be an eye-opener and help the telecommunication industry stakeholders and partners in developing the best trade practices by formulating appropriate strategies to improve their present system of doing business for the expansion, growth and retention of their customer base by protecting their changing and varied interests who are considered to be instrumental for the well being of the company.