CHAPTER III

RESEARCH METHODOLOGY

Chapter three outlines the research design, universe, sampling design, hypothesis and details of tool of data collection adopted in the research study. It also explains about the pilot study, details about data collection and statistical procedures used to analyze the data.

3.1 Research Design

Research design is the plan and structure of investigation, so conceived as to obtain answers to research questions and control variance (Kerlinger F.N, 1986). Research design is also referred to as a blueprint that provides the researcher with detailed outline or plan for the collection and analysis of data. This quantitative research study adopts the survey design to achieve the research objectives. It entails the collection of data on a number of variables at a single juncture.

In the conventional sense, this survey research adopts descriptive research design. In contemporary terminology, survey designs are also called co relational designs. Co relational field study is a study based on survey data conducted in field, in which the relationship between one or more dependent variables and one or more independent variables are examined (Tharenou P, Donohue R and Cooper, 2007).

This research study adopts the descriptive, co-relational field survey design as the focus was to study the relationship between variables. This research study brings out the relationship between the dimensions of relationship marketing with respect to customer satisfaction and customer loyalty.

3.2 Source of Data and Unit of Analysis

Source of data refers to the source or sources of relevant information to be taped to fulfil the objectives of the research study (Ramachandran P, 1993). It may be classified as primary or secondary data. Primary data refers to data collected for the first time and are original in character (Kothari C.R, 2004). The data for this research study were to be collected from primary sources. Secondary sources of data are to be collected from books, journals and web resources.
Unit of analysis refers to social entities whose social characteristics are the focus of the study (Baker T.L 1999). The unit of analysis may be individuals, groups, organisations or institutions depending on the research questions developed for the research study. In this research study, the customers of telecommunication service provider constituted the unit of analysis.

3.3 Universe and Sampling Frame

Universe of the research study pertains to customers of telecommunication service provider. A total of 750 questionnaires were distributed among customers of Chennai at different locations namely Mount Road, Pallikaranai, Ramapuram and Guindy and 575 filled in questionnaire were received, Out of which 20 were found to be incomplete. Hence the total sample size of the research study was 555 respondents.

3.4 Sampling Design

Simple random sampling has been used by the researcher to select samples based on ease of access of the location from where the data has been collected for the research study. The researcher has used simple random sampling (type of probability sampling) for his research study.

3.5 Hypotheses

Hypothesis is a conjectural statement of the relation between two or more variables (Kerlinger F.N 1986). The following null hypotheses (H\textsubscript{0}) have been framed for statistical testing:

H\textsubscript{0}1: There is no significant variation in mean of demographic variables like educational qualifications, age, occupation, annual income and longevity pertaining to respondents with respect to dimensions of relationship marketing, customer satisfaction and customer loyalty respectively.

H\textsubscript{0}2: There is no significant difference in mean of demographic variables like gender, marital status and types of customers pertaining to respondents with respect to dimensions of relationship marketing, customer satisfaction and customer loyalty respectively.

H\textsubscript{0}3: There is no significant relationship between dimensions of relationship marketing with respect to customer satisfaction and customer loyalty respectively.
H₀₄: There is no significant influence between dimensions of relationship marketing with respect to customer satisfaction and customer loyalty respectively.

H₀₅: The dimensions of relationship marketing will not serve as significant predictors and explain the variance in customer loyalty.

H₀₆: The dimensions of relationship marketing will not serve as significant predictors and explain the variance in customer satisfaction.

3.6 Tool of Data Collection

Questionnaire is the method of obtaining specific information about a defined problem so that the data analysis and interpretation result in a better appreciation of the problem. Questionnaires are the most frequently used means of collecting primary data whereas other methods (e.g. secondary data, observational and qualitative research etc) are more likely to supplement survey research rather than take its place. There are a number of methods by which questionnaires can be administered. These include by personal interview, by telephone, by mail or self-administration.

This research study is an attempt to analyse the impact of dimensions of relationship marketing on customer satisfaction and customer loyalty. The researcher has held in-depth interviews with the customers of telecommunication service provider. Based on the interviews, discussion and the literature review, a questionnaire was constructed. The first section of the questionnaire deals with the demographic profile of the respondents like gender, age, marital status, occupation and annual income of the respondent. The second section of the questionnaire contains forty five statements of which thirty seven statements are for measuring relationship dimensions and the remaining eight statements for measuring customer satisfaction and customer loyalty.

Likert summated scales are used in this research, as they are felt to be an effective tool for measuring attitudes. Likert scales are seen to be a good research tool due to their reliability and the greater information generated about the depth of respondent feelings. They are also easy for respondents to understand and quicker to complete. For this research a five points Likert scale is used. i.e. Strongly agree to strongly disagree.
3.7 Pilot Study

A pilot study is a small-scale rehearsal for a larger main study. Pilot study provides valuable insight for the researcher.

The pilot study was carried out among 100 respondents in Chennai (during December, 2011 and January, 2012) before the actual collection of data.

3.8 Data Collection

Data collection was made during the months of February to July, 2012.

3.9 Statistical Test Used in the Research Study

Analysis plan provides insights into the most optimal manner in which the voluminous data collected could be summarized and analysed, to arrive at the answers to the research questions and to address the research objectives (Ramachandran P 1993).

Data processing was done by using Statistical Package for Social Sciences, (SPSS Version 16.0) and Analysis of Moment Structure (AMOS, Version 16.0) were used to analyse the data. Descriptive and inferential statistics have been applied to the data. Descriptive statistics describe and summarise sets of data, inferential statistics help generalize from a sample to a whole population by testing hypothesis. Frequency distributions, percentage analysis and descriptive statistics were drawn as a part of univariate analysis. Bi-variate and multivariate analyses have also been carried out. As part of confirmatory data analysis, both correlation and differences have also been carried out. Step - wise multiple regression has also been carried out. The various statistical tests applied are discussed below:

(A) **Descriptive Statistics:** Descriptive statistics help understand the data. This has been aided by computing mean, standard deviation, range and coefficient of variation. Coefficient of variation gives the percentage of standard deviation in terms of sample mean.

(B) **Coefficient of Reliability-Cronbach Alpha:** Reliability of the scales was checked using Cronbach alpha. Cronbach alpha is a measure of squared correlation between observed scores and true scores where reliability is measured in terms of the ratio of true score variance to observed score
variance. Cronbach alpha value of 0.70 and above indicates good reliability (Nunnally J.C 1978).

(C) **Factor Analysis**: Confirmatory factory analysis is a type of factor analysis in which specific expectations concerning the number of factors and their loadings are tested on sampling data.

(D) **Independent Samples T-Test with Levene’s Test for Equality of Variances**: Babbie E, Halley F and Ziano J (2003) encapsulate the essence of the t test as the examination of the distribution of the values on one variable among two different categories of another variable thereby calculating the probability that the observed difference in mean results from sampling error alone. While, computing the t - test results for each of the data tables, the Levene’s test for Equality of variances is checked for significance. If the test results are not found significant, the equal variance estimates of the t - test results are interpreted in each of the case.

(E) **Analysis of Variance (ANOVA)**: One Way Analysis of Variance helps compare the mean variation between two variables across more than two groups. Analysis of Variation examines the mean of sub - groups in the sample and analyses the variance as well. It also examines whether the actual values are clustered around the mean or spread out from it (Babbie E, Halley F and Ziano J 2003). Significant F - ratio indicates that the population means are probably not at all equal.

(F) **Karl Pearson’s Correlation Coefficient and Coefficient of Determination**: Correlation studies the relationship between two or more variables in a linear fashion. Pearson’s correlation coefficient helps determine whether knowing one variable would help come closer in the guess of the other variable and also helps calculate how much closer that would be (Babbie E, Halley F and Ziano J 2003). Correlation helps determine the presence, direction and magnitude of relationship between independent and dependent variable of the research study. Correlation coefficient below 0.1 is small and between 0.3 is medium and 0.5 and above is large (Cohen J 1988). Further, coefficient of correlation ($r^2$) also known as ‘coefficient of determination’ is the proportion of variance in the dependent variable that can be accounted by knowing the independent variable (Sheskin, D.J 2004). The
coefficient of determination indicates the proportion of shared variance between the variables, irrespective of causality.

(G) **Multiple Regressions**: Multiple regressions help predict a criterion variable from a set of predictors. In regression analysis, a predictive model is fitted to predict values of the dependent variable from one or more independent variables. Regression analysis is used when independent variables are correlated with one another and with the dependent variable (Coakes S.J, Steed L and Dzidic P 2006).

(H) **Structural Equation Modelling**: Structural Equation Modelling is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. It allows both confirmatory and exploratory modelling, meaning they are suited to both theory testing and theory development.

### 3.10 Telecom Service Provider Company Profile

In India, the six top players are Bharti Airtel, Vodafone, Reliance, idea, Aircel and BSNL – account for over 79 per cent of the total subscribers.

1. **Bharti Airtel**

Bharti Airtel Limited, Commonly known as Airtel is a leading global telecommunications company with operations in 20 countries across Asia and Africa head quartered in New Delhi, India. The company ranks amongst the top 4 mobile service providers globally in terms of subscribers. In India, the company’s product offering include 2G, 3G and 4G wireless services, mobile commerce, fixed line services, high speed DSL broadband, IPTV, DTH, enterprise services including national & international long distance services to carriers. Airtel is the largest provider of mobile telephony and second largest provider of fixed telephony in India and is also a provider of broad band and subscription television services. Bharti Airtel has over 191.39 million GSM subscribers across its operation at the end of July 2013.

2. **Vodafone**

Vodafone India, formerly Vodafone Essar and Hutchison Essar is the third largest mobile network operator in India after Airtel and Reliance communication by subscriber base. Vodafone India is a member of the Vodafone group and commenced
operations in 1994 when its predecessor Hutchison Telecom acquired the cellular license for Mumbai. The company now has operations across the country with over 150 million customers. Serving the needs of an enterprise, Vodafone business solutions is a total communications offering that caters to all their voice and data, wireless and fixed-line requirements with the advantage of global expertise and experience and the knowledge of local markets, the business is running through the following verticals. Vodafone Global Enterprise, SME division, National corporate and key accounts. Since the inception, Vodafone business solutions has garnered over 3 million corporate customers in India and currently provides services to over 6000 global and national accounts equipped with a robust and superior network infrastructure.

3. Reliance Communications

Reliance communications LTD (Commonly called RCOM) is an Indian broadband and telecommunications company head quartered in Navi Mumbai, India. RCOM is India’s second largest telecom operator only after Bharti Airtel. It is world’s 15th largest mobile phone operator with over 150 million subscribers. Established in 2004, it is a subsidiary of the reliance group. The company has five segments: wireless segment includes wireless operations of the company; broadband segment includes broadband operations of the company and wholesale operations of its subsidiaries. Investment segment includes investment activities of the group companies and other segment consists of the customer care activities and direct-to-home (DTH) activities.

It ranks among the top 5 telecommunications companies in the world by number of customers in a single country. Reliance communications owns and operates the next generation IP-enabled connectivity infrastructure, comprising over 1, 90,000 kilometres & fibre optic cable systems in India, USA, Europe, Middle east and Asia Pacific region. Reliance Pan-India wireless network runs on CDMA 2000 technology, which has superior voice and data capabilities compared to other cellular mobile technologies.

4. Bharat Sanchar Nigam Limited (BSNL)

Bharat Sanchar Nigam Limited, the largest public sector undertaking of the nation. BSNL’s GSM cellular mobile service cell one has a customer base of over 97.17
million. Cell one provides all the services like MMS, GPRS, Voice mail, E-mail, short message services (SMS) both national and international, unified messaging service (send and receive mails) etc. You can use cell one in over 160 countries worldwide and in 270 cellular networks and over 1000 cities/towns across India. It has got coverage in all national and state highways and train routes. BSNL is a pioneer of rural telephony in India. BSNL has bagged 80% of US$ 500m (INR 2,500 crores) Rural Telephony project of Government of India.

5. Aircel

Aircel group is an Indian mobile network operator headquartered in Delhi, which offers voice & data services ranging from post paid and prepaid plans, 2G & 3G services, Broadband wireless Access (BWA) long term evolution (LTE) to value added services.

Aircel is India’s fifth largest GSM mobile service provider and seventh largest mobile service provider (both GSM and CDMA) with subscriber base of over 65.1 million. It has a market share of 7.35% among wireless operators (includes GSM, CDMA and FWP operators) in the country. Aircel has also obtained permission from department of telecommunication (DOT) to provide international long distance (ICD) and national long distance (NLD) telephony services. It also has the largest service in Tamil Nadu.

6. TATA Teleservices Limited

TATA Teleservices Limited spearheads the TATA Group’s presence in the telecom sector. Incorporated in 1996, TATA Teleservices Limited is the pioneer of the CDMA technology platform in India. It has embraced on a growth path since the acquisition of Hughes Tele.com (India) Ltd (renamed TATA Teleservices (Maharashtra) Limited by TATA group in 2002. It launched mobile operations in January 2005 under the brand Tata Indicom and today employs a pan-India presence through existing operations in India’s entire 23 telecom circle.
TATA Teleservices Limited now also has a presence in GSM space, through its joint venture with NTT DOCOMO of Japan, and offers differentiated products and services under the Tata DOCOMO brand name. TATA DOCOMO has received a pan-India license to operate GSM telecom services and has also been allotted spectrum in 18 telecom circles.

The next chapter deals with results and discussion.