CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This chapter contains the research questions, objectives of the study and null hypotheses that are formulated for the purpose of this research. It also involves selection of sample, the methods adopted for collecting the data and to analyze the collected data. The sampling frame and limitations of the study is discussed. Towards the end, the chapter scheme is discussed.

3.2 RATIONAL BEHIND THE STUDY

The topic of attrition is receiving daily media attention and complexity of the issue can be confusing to businesses that are interested in the investigating of shoring work to India. This research work proposes to examine the varied and often complex causes of attrition in the context of the rapidly growing software industry sector. It also try to suggest how some industry participants are attempting to proactively address this problem that threatens the long term sustainability of Indian software industry. The focus of this comprehensive insight is limited to software attrition in the Indian context.

3.3 OBJECTIVES OF THE STUDY

The study was undertaken with the following objectives:

i. To study the socio-economic background of the selected software industries in Bengaluru and Kochi,

ii. To measure the level of job satisfaction of software employees, 

iii. To examine the factors influencing job satisfaction and working environment of Software professionals, and

iv. To identify the problems hindering the growth of IT sector and to offer recommendations for improving the level of job satisfaction of software employees in the study area.
3.4 PROBLEM

The term job satisfaction refers to the general attitude of an individual towards his/her job (Robbins, 2003). Job satisfaction has been defined as a pleasurable emotional state resulting from the appraisal of one’s job; an affective reaction to one’s job; and an attitude towards one’s job. Weiss (2002) has argued that job satisfaction is an attitude but points out that researchers should clearly distinguish the objects of cognitive evaluation which are affect (emotion), beliefs and behaviors. This concept suggests that we form attitudes towards our jobs by taking into account our feelings, our beliefs, and our behaviors.

Employee’s job satisfaction is a key to the success of IT industries that relies on a variety of organizational and psycho-economic factors. Job satisfaction of IT industries is primarily because of the reason that job satisfaction significantly affects major organizational outcomes such as individual performance, organizational productivity, and employee’s absenteeism and employee turnover. Employees being an integral asset of the organization, impart organization in accomplishment of their objectives.

In this context, the researcher makes an attempt to study the measurement index of job satisfaction of employees of software industry in Bengaluru and Kochi and also to identify and investigate to factors influencing the job satisfaction of the employees in the proper perspective.

3.5 RESEARCH QUESTIONS:

In the light of these aspects, it seems relevant to focus on the job satisfaction of employees of the software industry. In this context, the researcher makes an attempt to investigate and answer the following research questions:

i) What is the level of job satisfaction of software industry employees?

ii) What are the factors influencing the job satisfaction of the software industry employees?

iii) To what extent organizational, social, domestic, technical, job related and human related causes affect the job satisfaction of employees?

iv) Is the performance of the Indian IT sector sustainable?
v) Do all the software industries in India perform equally well?
vi) If not, how they are different from others in terms of performance?
vii) Are the software industries investment worthy?

3.6 HYPOTHESES
The study is based on the following null hypothesis:

3.6.1 Hypothesis 1
Measurement factors and job satisfaction:

i. There is no association between location of industry and job satisfaction of employees.

ii. The sex of an employee does not contribute to job satisfaction.

iii. The age group does not influence the job satisfaction of employees.

iv. The marital status of the employees does not accelerate the job satisfaction.

v. There is no association between educational level and job satisfaction of employees.

vi. The income of an employee does not have a bearing on the job satisfaction.

vii. The designation (cadre) of an employee does not influence the job satisfaction.

viii. There is no association between length of service of an employee and job satisfaction.

ix. The domain of responsibility of an employee does not having a bearing on the job satisfaction.

x. The size of family of an employee does not contribute to job satisfaction.

xi. There is no association between number of dependents in the family and job satisfaction of employees.

xii. The nature of employment has no impact on the job satisfaction of employees.

xiii. The nature of accommodation of employees in the IT sector has no effect on the job satisfaction.

xiv. The distance traveled by an employee does not have a bearing on the job satisfaction.

xv. There is no association between total strength of employees and job satisfaction.
xvi. There is no association between team size in the organization and job satisfaction of employees.

3.6.2 Hypothesis 2
Different causes and job satisfaction:

i. There is no association between job related causes and job satisfaction of employees.

ii. The human related causes do not have a bearing on the job satisfaction of employees.

iii. The social related causes does not contribute to the job satisfaction of employees

iv. There is no impact of domestic related causes on the job satisfaction of employees.

v. The technical related causes does not accelerate the job satisfaction of employees

3.7 RESEARCH DESIGN AND METHODOLOGY

The present study is descriptive and analytical based on empirical observations and a comprehensive survey. Both the primary and secondary data were collected, analysed and interpreted. Interview Schedule (Vide Appendix A) has been constructed and used for collection of data from 400 employees in the study area.

   A pilot study was undertaken with the following specific objectives:

i. To evaluate the tools prepared for the study and to find whether they provide the required information.

ii. To verify whether tools selected are applicable or not, to the population to be studied.

iii. To ascertain the feasibility of the procedure adopted in collecting the data.

iv. To assess the reliability and/or validity of the tools being selected for the study.

3.8 SAMPLING FRAME

Systematic sampling technique was adopted to select the required sample frame of respondents of the study.
The 420 employees from Bengaluru as well as 410 employees from Kochi (10% of the population) were arranged in alphabetical order separately and every alternate respondent was selected to be included in the sample. The sample of respondents selected from Bengaluru was 200 employees and that from Kochi also was 200 employees. The total selected respondents as sample for the study became 400 employees.

**TABLE 3.1**

**LIST OF COMPANIES CHOSEN FOR THE STUDY IN KOCHI**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the company</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aabasoft</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Affiliated Computer Services</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>US Tech Solutions Pvt Ltd</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Accel Frontline Ltd</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Convergys India Services Pvt Ltd</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>IBS Software Services (P) Ltd</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>Mindlogicx Infotech Ltd</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Tata Consultancy Services Ltd</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>Wipro Technologies (Wipro Ltd)</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>Global Info net Inc</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>

Source: National Association of Software and Services Companies (NASSCOM), New Delhi.

**TABLE 3.2**

**LIST OF COMPANIES CHOSEN FOR THE STUDY IN BENGALURU**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the company</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accenture Services Pvt Ltd</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Cegonsoft Pvt Ltd</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>EMC Data Storage Systems (India) Pvt</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Fidelity Business Services India Pvt Ltd</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Honeywell Technology Solutions Lab Pvt Ltd</td>
<td>20</td>
</tr>
</tbody>
</table>
3.9 INSTRUMENTATION

The data was subjected to appropriate statistical analysis depending on the type of data. The statistical tools used for the study are presented below:

- Descriptive Analysis,
- ANOVA,
- Chi-Square Test,
- Reliability Analysis,
- Factor Analysis
- Discriminant Analysis, and
- Five Point Scaling Technique

3.9.1 DESCRIPTIVE ANALYSIS:

(i) Simple Percentage Analysis

Simple percentage analysis is one of the basic Statistical tools which is widely used in analysis and interpretation of primary data. It deals with the number of respondents’ response to a particular question in percentage, arrived from the total population selected for the study.

Formula

\[
\begin{align*}
\text{Simple Percentage} & = \frac{\text{Number of respondents’ response to a question}}{\text{Total number of samples selected for the study}} \times 100
\end{align*}
\]
It is one of the simple forms of analysis which is very easy for anyone to understand the outcome of the research. It is normally used by commercial research organizations and pictorially presented with different diagrams.

(ii) Range and average score analysis method also employed along with simple percentage analysis

3.9.2 ANALYSIS OF VARIANCE (ANOVA)

The analysis of variance is a powerful statistical tool for tests of significance. The test of significance based on t-distribution is an adequate procedure only for testing the significance of the difference between two sample means. In a situation when we have three or more samples to consider at a time, an alternative procedure is needed for testing the hypothesis that all the samples are drawn from the populations with the same mean. The basic purpose of the analysis of variance is to test the homogeneity of several means.

3.9.3 CHI-SQUARE TEST

The chi-square test is used in the common chi-squared tests for goodness of fit of an observed distribution to a theoretical one, the independence of two criteria of classification of qualitative data, and in confidence interval estimation for a population standard deviation of a normal distribution from a sample standard deviation. In this study, the Chi-Square test is employed to identify the association between the causes and the extent of job satisfaction.

3.9.4 RELIABILITY ANALYSIS

The reliability of scales used in this study was calculated by Cronbach's coefficient alpha. Cronbach’s alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach’s alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale. If the coefficient alpha values exceeded the minimum standard of .70, it indicates good estimates of internal consistency reliability.

- The formula is as follows:
  \[ \alpha = \frac{kr}{1 + (k - 1)r} \]
• k is the number of items in the scale.
• r is the average correlation pairs of items.
• As the number of items in the scale (k) increase, the value of alpha becomes larger.
• If the inter-correlation between items is large, the corresponding alpha will also be larger.

3.9.5 FACTOR ANALYSIS.

Factor Analysis is a set of technique which by analyzing correlations between variables reduces their numbers into fewer factors which explain much of the original data, more economically. Even though a subjective interpretation can result from a factor analysis output, the procedure often provides an insight into relevant psychographic variables, and results in economic use of data collection efforts. The subjective element of factor analysis could be reduced by splitting the sample randomly into two and extracting factors separately from both parts. If similar factors result, the analysis could be assumed as reliable or stable.

3.9.6 DISCRIMINANT ANALYSIS

Discriminant function analysis involved classification problem also. To ascertain the efficiency of the discriminant function analysis, all the variables which satisfy the entry and removal criteria were entered into the function. Normally the criteria used to select the variables for inclusion in the function is minimum F to enter into the equation (i.e.) F statistic calculated for the qualified variable to enter into the function is fixed as $\geq 1$. Similarly any variable entered in the equation will be removed from the function if F statistic for the variable calculated is $< 1$. The two groups are defined as

Group 1 - Low level
Group 2 - High level

The mean and standard deviation for these groups and for the entire samples are given for each variable considered in the analysis.
3.9.7. FIVE POINT SCALING TECHNIC

Mean, standard deviation, five point scaling technique, ANOVA etc has been employed for measuring the level of job satisfaction of employees.

3.10 FIELD WORK AND COLLECTION OF DATA

The field work was undertaken by the researcher. Interview Schedule (Vide Appendix. A) was used for collecting information regarding the extent of job satisfaction of employees in software industry. Interview schedule was constructed by the researcher with the help of research supervisor and administered in person in the study area.

3.11 DATA PROCESSING

After completing the interview schedule, a thorough check up of the data has been made. The missing data were collected by revisits. The editing, coding and classification of data was done. For the purpose of analysis, the data were transcribed on transcription cards and the master table was prepared.

3.12 MEASUREMENT OF VARIABLES AND CONSTRUCTION OF SCALE

The main aim of the study is to highlight the job satisfaction of employees in software sector and to identify the factors influencing the job satisfaction of employees.

Statistical tools such as Mean, Standard Deviation and ANOVA test have been used for measuring the variables. There are two types of variables in the study namely dependent and independent variables. The researcher has identified sixteen components (independent variables) to measure the job satisfaction (dependent variables). There is no readymade scale to measure the job satisfaction level, a scale namely “Job satisfaction scale” has been developed by awarding score to the sixteen components. With the help of this scale, the extent of job satisfaction has been measured.

3.13 FRAME WORK OF ANALYSIS

First the extent of job satisfaction of employees has been measured through the five point scaling namely ‘job satisfaction scale’, constructed on the basis of sixteen components. These sixteen components have been quantified with the help of a scoring
scheme. The variables identified for the study have been analyzed with the help of classification tables, percentage, arithmetic mean and standard deviation.

Secondly, 16 factors promoting the satisfaction level have been categorized. For measuring the relationship between job satisfaction and various factors, ANOVA has been applied.

### 3.14 LIMITATIONS OF THE STUDY

(i) Generalizations have limited scope as the study covered only a limited period and area.  
(ii) It is felt that the size of the sample is inadequate and not a representative of the Universe.  
(iii) The size of the sample was not proportionate when considering the total strength of various classes of employees under consideration.

### 3.15 GEOGRAPHICAL COVERAGE AND PERIOD OF THE STUDY

The researcher makes an attempt to study the measurement index of job satisfaction of employees in software industry in Bangalore and Kochi cities. The study covers a period of five years from 2008 to 2013.

Bengaluru is the capital of the Indian state of Karnataka, located on the Deccan Plateau in the south-eastern part of Karnataka, Bengaluru is India's third most populous city and fifth-most populous urban agglomeration. Bengaluru is well known as a hub for India's information technology sector. It is among the top 10 preferred entrepreneurial locations in the world. Kerala is also a state with well developed Information Technology companies in India. Infopark Kochi is located in 100.86 acres of land at Kakkanad village, Kanaiyannur Taluk, Ernakulam District. Around 80 acres has been notified as an IT sector Specific economic zone by Ministry of Commerce, Government of India. Apart from Infopark owned infrastructure, parallel developments by co-developers such as Leela Soft, L&T Techpark and Brigade Enterprises are also taking shape in the campus. Thus offering IT companies a choice of office space solutions to fix their requirements and budget. Major private IT Campuses by Wipro, TCS and IBS Software are also in progress. When Infopark-Kochi Phase-1 is fully developed, a total super built-up area of 4.50 million sq.ft would be completed. The campus includes amenities such as food courts, banking counters, ATM, shopping arcade etc. The city also has one Cyberpark
which are also home for number of software companies. Based on these factors the present study is conducted in Bengaluru and Kochi.

3.16 CHAPTER SCHEME

The research report consists of five chapters:

First chapter deals with introduction of the study. In this chapter the importance of human factor and job satisfaction and the various determinants of job satisfaction and its contribution to human resource development. It reviews the development of software industry in India and Abroad and the growth of IT sector in the study area.

Second chapter focuses on overview of literature pertaining to the concept of job satisfaction and its related areas of knowledge.

Third chapter discusses the research design and methodology such as introduction, rational behind the study, statement of the problem, objectives of the study, research questions, formulation of hypotheses, methodology, sampling frame, statistical tools employed, limitations of the study and chapter scheme.

Fourth chapter analyses the extent of job satisfaction and the factors influencing the job satisfaction of employees in software industry in the study area.

The concluding observation in the fifth chapter embodies the summary of the findings, suggestions for enhancing the job satisfaction level of the employees and the development of IT sector, future directions for research and conclusion.

3.17 SUMMARY

The research design and methodology adopted for the study is discussed in detail in this chapter. Here, various components such as objectives of the study, hypotheses, methodology and tools, sampling design, field work and collection of data, data processing, measurement of variables, construction of five point scale, frame work of analysis and the chapter scheme is presented.
REFERENCES:
