CHAPTER 3
RESEARCH METHODOLOGY

The present study examines the organization development practices followed by BHEL, Ranipet plant, Tamil Nadu. With a view to develop a sound theoretical framework for the study, the review of literature relating to organization development practices has been done in the previous chapter. Important studies relating to the organization behaviour and development practices researched by social scientists in India as well as abroad have been reviewed.

The study has selected seven factors such as Emotional Intelligence, Job satisfaction, Motivation, Leadership, Communication, Decision making and Team building to examine the impact of these factors on the development of organization. The study also gives suggestions to improve the organization in the present globalized environment.

Research Work

The purpose of this research is to assess the factors influencing the organization development. In the recent years, organization development has been gaining momentum in management theory. The field of organization development is continuously developing over the years and organizations are reaping huge benefits by strategically and systematically focusing on organizational development factors.

With regard to the need for clarification regarding the state of organization development research in general, there would seem to be a need for comparative analysis of the evaluation methodologies. It would not seem advisable to group together the major organization development variants for the purpose of generalizing on the state of organization development research.

Researchers are still searching the truth in the said field in different dimensions like how people and organizations function and how to get them to function better, while the primary thrust given by organizational development practitioners is on how to improve functioning of individuals, teams, and organizations as a whole with the secondary thrust being on each member of organization as to how to develop the organization better. To achieve all these goals,
a systematic approach is to be arrived at for framing organization development strategy and the influencing factors are also to be identified.

In general, there are seven factors that have been identified as key factors which help organization development. They are emotional intelligence job satisfaction, motivation, decision making, communication, leadership and team building. In some organizations these factors are not properly identified and bottlenecks to their proper development are not analyzed. As a result, the organization becomes dysfunctional and sometimes even paralyzed. In this direction, the present study aims to study these factors which critically influence organization development.

**Statement of the Problem**

The title of the research is as follows:

**ORGANIZATION DEVELOPMENT PRACTICES OF HEAVY ENGINEERING INDUSTRIES IN INDIA - A STUDY WITH REFERENCE TO BHEL, RANIPET, TAMIL NADU**

Organization development is an effort, planned, organization-wide and managed from the top, to increase the organization’s effectiveness and health through planned interventions in the organizations process using behavioural science knowledge.

It is stated that organization development is a system-wide application of behavioural science knowledge to the planned development and reinforcement of organizational strategies, structures and processes for improving the organization effectiveness.

Nowadays, induced motivation can be uncovered in efforts to change an organization by manipulating the installation of meritorious products like total quality management (TQM), business process re-engineering or continuous improvement. These top down efforts wrongly assume that the products’ potential merits guarantee their successful installation. Their error is in overlooking the way in which the process of introducing such changes frequently and adversely affects the eventual success of the changes. Particularly, there is a failure frequently to see the powerful effects that participative and non-participative processes of crafting organizational changes have on employees’ own levels of motivation and subsequent commitments to making the changes work.
Innovation in organization development intervention technology over the past half century exhibits increasing sophistication in the methods for employing these core principles. In the 60s and 70s, the technology of organization development was narrowly focused on such things as cooperatively linking employees across bureaucratic barriers, building ties among teams that cut across both hierarchical and functional divides etc. These efforts are even though bold and creative for their time, fell short of fully satisfying the needs of organizational development, because they neglected many important structures, processes and people in client organizations.

For example, scant attention was given to customers (internal or external), outside vendors, product quality, cycle time, work structure, reward systems, mission or strategy. By including attention to these issues, technology has made giant advances towards more fully and efficiently incorporating the implications of the organization development principles into organization change efforts.

In this research an attempt has been made to understand and evaluate the effectiveness and outcomes of organization influencing variables by conducting the study in Bharat Heavy Electricals Limited (BHEL), Ranipet, TamilNadu.
Objectives of the Study

1. To study the concept of organization development practices at Bharat Heavy Electricals Limited (BHEL), Ranipet, Tamil Nadu

2. To assess the impact of personal factors (emotional intelligence and motivation) on organization development in the organization.

3. To evaluate the influence of organizational factors (job satisfaction, team building, decision making, leadership and communication) on organization development in BHEL, Ranipet

4. To ascertain the relationship between personal factors and organizational factors and to determine the impact of the same on organization development

5. To offer suggestions to improve the organizational development among the executives of BHEL, Ranipet
Hypotheses

In the light of the stated objectives, the following six hypotheses have been framed for the study.

Hypothesis 1.

There is no association between educational status and emotional intelligence

Hypothesis 2.

There is no association between experience and job satisfaction

Hypothesis 3.

There is no association between educational status and motivation

Hypothesis 4.

There is no association between experience and communication

Hypothesis 5.

There is no association between educational status and leadership

Hypothesis 6.

There is no association between experience and team building
Research Design

Every research starts with the method of approaching the problem under study, called research design. It is necessary to structure a project and to show how all the major elements of the research project work together in order to address the central research question. The ways of finding solutions to the research problem is called research methodology and the framework of the research is called research design. In this study we have used descriptive method of research design.

In this study, the research tools are a combination of different techniques; primary data and secondary data have been used and analysed using statistical techniques.

Criteria for selection of organization of study

A single enterprise is chosen as it is necessary to go in depth with an acceptable amount of width, to be able to clearly achieve the stated research objectives. The main criteria used in this study for selecting the study area are summarized below:

1. The first important decision was choosing an organization from either the public sector or the private sector organizations

2. How long the organizations have been in existence? The chosen organization must have been in existence for at least two decades or more

3. The third criterion has been that the knowledge created by the study should be of vital use not only to the organization studied but to the wider community as well i.e., the community consisting of the Indian public sector organizations, private sector organizations located both nationally and internationally in the sector to which organization under study belongs.

Structural adjustments and privatization have become the central drivers to achieve transformations and turnaround. The emphasis laid on disinvestments and privatization of public sector undertakings is largely because they were felt to be less productive, though there also have been a few examples of high growth and high performing public sector organizations in India. Looking at the possible wider utility of the research undertaken, the study of a public
sector undertaking was felt to be more appropriate, as the knowledge generated in the study could help in not only developing or reformulating growth plans of the public sector organizations, but also help in revisiting and reengineering the central drivers for creating high performing public sector undertakings in India. This would help to make major contributions to economic growth of India and also assist other organizations in the private sector, both nationally and internationally.

Having chosen to study an organization in the public sector, the next choice was a specific enterprise from among different industry sectors for studying Organizational Development. In this regard, the researcher has chosen BHEL, Ranipet Plant in his home state of Tamil Nadu as the organization for the study.

**Pilot Study and Reliability Test**

Initially a pilot study was conducted with 50 questionnaires for making the opinions and the relevance of some questions were slightly modified for the final version of questionnaire. The reliability coefficient of the questionnaire designed is computed using Cronbach’s Alpha and the value obtained is 0.86, which shows that the instrument is reliable.

**Sampling and Sample Design**

To avoid interplant variation, the sample was chosen from only one organization, viz., Bharat Heavy Electricals Limited (BHEL), Ranipet, Tamil Nadu. The desired sample, 256 was obtained with multi stage sampling technique. In the first stage, the study area and in the second stage, the organization have both been chosen under lottery ticket method. In the third stage, sample respondents have been chosen and it was decided to undertake the survey only among those executives who were directly concerned with the organization development. The study selected 256 executives as the sample from the universe.

**Tools of Data Collection – Questionnaire**

For developing the questionnaire, the existing literature on organizational development practices and principles, theoretical aspects of organizational development was reviewed. A few top level executives were also contacted. The observations made during the discussions with the executives also helped in the preparation of questionnaire. The preliminary draft of the
questionnaire was pretested with 50 executives. This helped in improving and formulating the final version of the questionnaire. The questionnaire contained the questions relating to emotional intelligence, communication, motivation, job satisfaction, leadership, decision making and team building.

For the purpose of survey, the questionnaire was distributed to the executives of the Bharat Heavy Electricals Limited, Ranipet plant, Tamil Nadu. The demographical attributes used for the selection of sample are qualifications, age, marital status, experience, number of dependents in a family and type of family.

**Data Collection**

To achieve the specified objectives of the study, primary data and secondary data have been collected. The process of collecting secondary data began immediately after identifying the organization for the study. The secondary data sources have been the organization news bulletins, information displayed on the notice board, details of training programme, training calendars, performance appraisal forms, consultancy reports, research study reports done by the organization and other relevant reading materials like books, journals, magazines, research reports, etc. The researcher had visited various libraries in the state and the institutions in the other states. The data is also collected from conference proceedings of the various institutes and universities.

Complete information related to the organization was first taken from their official website and later through various reports, journals and books, etc. of the organization. Having done that, relevant concepts identified in the literature with respect to various chosen variables were given careful thought, to seek focused responses to the questions required to be asked to respondents. Careful thought was also given to the design of each question after a study of the various organizational aspects from different secondary sources, including discussions with those who have been and who are associated with it as consultants, trainers, etc. including the selected executives in the field.

To examine the impact of the stated parameters on organization development, the primary data has been collected through structured questionnaire. Interactions with top officials of BHEL, Ranipet plant helped to collect the primary data for the study.
Tools of Data Analysis

The analysis part of the present thesis is made by using the various parametric and non-parametric statistical tests namely, Percentage Analysis, Chi-square Test, Weighted Average Scores (WAS), Friedman Test, Correlation Matrix and Regression Analysis etc. The important tools used for analysis in the study have been described as under:

Weighted Average Scores (WAS)

Weighted Average Scores (WAS) were calculated as per need of the study in the analysis of primary data. WAS has been used where the executives were asked to rank or rate different attributes relating to the various factors (Emotional intelligence, Job satisfaction, motivation, communication, leadership, decision making and team building) according to their degree of importance.

For example, where the five-point Likert scale was used to measure the extent of importance as degree of satisfaction/ dissatisfaction or to large extent/least extent regarding different attributes (variables) relating to organization development, the scale rank was 5 to 1. Higher number indicates most important/highly satisfied and lesser number indicates the most unimportant/highly dissatisfied. The average scores have been calculated by assigning weights, such as 5 for ‘most important’, 4 for ‘important’, 3 for ‘neither important nor-unimportant’, 2 for ‘unimportant’ and 1 for ‘most unimportant’. On the basis of frequency of rating for each attribute, weighted average scores for each attribute were calculated.

Chi-Square Test

The Chi-Square test procedure tabulates a variable into categories and computes a chi-square statistic. This goodness of fit test compares the observed and expected frequencies in each category to test that all categories contain the same proportion of values or test that each category contains a user-specified value.

Friedman Test
The Friedman test is the nonparametric equivalent of a one sample repeated measures design or a two way analysis of variance with one observation per cell. Friedman tests the null hypothesis that k related variables come from the same population. For each case, the k variables are ranked from 1 to k and the test statistic is based on these ranks. The Friedman test is used for treatment differences in a randomized complete block design. Each block of the design may be a subject or a homogeneous group of subjects. If blocks are groups of subjects, the number of subjects in each block must equal the number of treatments. Treatments are randomly assigned to subjects within each block. If there is one subject per block, then the subjects are repeatedly measured once under each treatment. The order of treatments is randomized for each subject. The formula for Friedman analysis is as follows;

\[ M = \frac{12}{nk} (k+1) \sum R^2_j - 3n(k+1) \]

Where,

k = Number of columns (often called ‘Treatments’)

n = Number of rows (often called ‘Blocks’)

\[ R^2_j \] = sum of the ranks in the column j

If there is no significant difference between the sum of the ranks of each of the columns, then M will be small, but if at least one column shows significant difference then M will be larger.

**Correlation Matrix**

Correlation coefficient measures the degree of linear relationship between two variables, usually labeled X and Y. The computation of the correlation coefficient is most easily accomplished with the aid of statistical packages. The correlation coefficient may take on any value between plus and minus one. The sign of the correlation coefficient (+, -) defines the direction of the relationship, either positive or negative. The correlation matrix of n random variables \( X_1, \ldots, X_n \) is the \( n \times n \) matrix whose \( i, j \) entry is \( \text{corr} (X_i, X_j) \). If the measures of correlation used are product-moment coefficients, the correlation matrix is the same as the covariance matrix of the standardized random variables \( X_i / \sigma (X_i) \) for \( i = 1, \ldots, n \). This applies to both the matrix of population correlations (in which case "\( \sigma \)" is the population standard
deviation) and to the matrix of sample correlations (in which case \( \sigma \) denotes the sample standard deviation). Consequently, each is necessarily a positive-semi definite matrix. The correlation matrix is symmetric because the correlation between \( X_i \) and \( X_j \) is the same as the correlation between \( X_j \) and \( X_i \).

**Regression Analysis**

Regression analysis studies the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps to understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Regression analysis is widely used for estimation purpose, where its use has substantial overlap with the field of machine learning. In restricted circumstances, regression analysis can be used to infer causal relationships between the independent and dependent variables. However, this can lead to illusions or false relationships, so caution is advisable. In this study, the researcher has applied regression analysis to estimate the relationship between organization development and its influencing factors.

The simple linear regression formula is given below

\[ Y = a + bX + e \]

Where \( Y \) is the dependent variable, \( a \) is the intercept, \( b \) is the slope, \( X \) is the independent variable, and \( e \) is an error or residual.

The regression analysis can be extended to measure the estimation of number of independent variables. The formula is

\[ Y = a + b_1X_1 + b_2X_2 + \ldots + b_kX_k + e \]

In this equation, there is \( k \) independent variables and a intercept and a error term but there is a slope for each. For the one variable case, the calculation of \( b \) and \( a \) was:

\[
b = \frac{\sum xy}{\sum x^2}
\]

\[
a = \bar{Y} - b\bar{X}
\]