CHAPTER III
PROBLEM AND PROCEDURE

3.1. Introduction
3.2. Aims of the present investigation
3.3. Problem of the study
3.4. Objectives of the study
3.5. Formulation of Null Hypotheses
3.6. Variables
3.7. Selection of Experimental Design
3.8. Nature of the study
3.9. Sample
3.10. Tool
3.11. Procedure
3.12. Statistical Analysis
CHAPTER - III
PROBLEM AND PROCEDURE

3.1 Introduction:

Job Satisfaction is a major concept in organizational Psychology. At various times the concept has been a dependent variable, independent variable and a moderator (Demette, 1976). Many psychologists tried to illustrate the role of job satisfaction in their theories of work motivation, like Herzberg et al. (1959), Maslow (1954), Vroom (1964) etc. Herzberg's two factor theory is more relevant to the present investigation in a broad sense. According to him mere absence of job satisfaction does not lead to the job dissatisfaction and vice versa. So there are two distinct sets of factors which are not a continuum, these have been referred to by Herzberg as 'Motivators' (satisfiers) and 'Hygiene' (Dissatisfiers) factors. The motivators include achievement, recognition, work itself, personal relations, job security and status, whereas 'Hygiene' factors include company policy and administration, supervision, working condition and interpersonal relation with pay overlapping with categories.
Studies in the area of job satisfaction demonstrate that high level occupational groups derive satisfaction largely from the expression of their effective skills, interesting and challenging tasks and critical sense of self-awareness of their responsible work. Though job satisfaction has been an area of active concern of the psychologists for many decades, yet little attention is given towards the job satisfaction of engineers in relation to their psycho-social variables. Engineers are highly skilled personnel of our society. Buildings, roads, dams etc., are the creation by them. If they are not satisfied with their job, than naturally it will affect their productivity.

The previous chapter contained detailed account of the researches on job satisfaction and related areas carried out in the past and in recent times in our country as well as in other countries. Apart from giving him an insight into the problem this has also helped the researcher in planning the present study more accurately and efficiently.

It is observed that planning is a necessary adjunct even for an ordinary routine daily work. It is a need of present time. And when a work is spread over a number of days, many months, planning must be at a care if the work is to be completed without any confusion. The present
study is a multi-dimensional research. Hence every care must be taken in preparing and executing the plan to arrive at definite and valid conclusions.

For the present investigation, has four independent variables, each at two levels. The dependent variable is the job satisfaction scores obtained by the subjects on job satisfaction scale. Table: 3.1, below gives the name of the variable and the levels at which they are operating:

**TABLE: 3.1**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the variables</th>
<th>Nature of the variable</th>
<th>Number of levels</th>
<th>Name of the levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Degree of Self-awareness</td>
<td>Independent</td>
<td>2</td>
<td>High self-awareness and low self-awareness (HSA LSA)</td>
</tr>
<tr>
<td>2.</td>
<td>Education</td>
<td>Independent</td>
<td>2</td>
<td>Degree holder (BCE) and Diploma holder (DCE)</td>
</tr>
<tr>
<td>3.</td>
<td>Type of Organization</td>
<td>Independent</td>
<td>2</td>
<td>Government Organization and Private Organization</td>
</tr>
<tr>
<td>4.</td>
<td>No. of dependent</td>
<td>Independent</td>
<td>2</td>
<td>Less than 3 and more than 3 to 5</td>
</tr>
<tr>
<td>5.</td>
<td>Job satisfaction</td>
<td>Dependent</td>
<td>1</td>
<td>Job satisfaction score</td>
</tr>
</tbody>
</table>
The above description of the independent and the dependent variables naturally leads to the formulation on the null-hypotheses which are going to be tested after the data have been duly obtained.

3.2. **Aim of the Present Investigation:**

The aim of the present study has been to find out the impact of self-awareness upon the job satisfaction among the engineers of Gujarat in context of some psycho-socio variables. It was observed that the level of job satisfaction of professional personnel in our country is alarming to the management. One can increase the degree of job satisfaction by using appropriate organizational health as well as higher level of organizational commitment. Hence the aim of the present research was to study the impact of self-awareness on job satisfaction.

3.3. **Problem of the study:**

The main aim of the present investigation has been to study the self-awareness and job satisfaction of Engineers of Gujarat in context of certain demographical variables. The exact problem of the present study runs thus:

"A STUDY OF THE IMPACT OF SELF-AWARENESS UPON THE JOB SATISFACTION AMONG THE ENGINEERS OF GUJARAT"
3.4 Objectives of the study:

The main objectives of the present study are as under:

(1) To study and compare the level of job satisfaction of high self-awareness engineers and low self-awareness engineers.

(2) To study the effect of education if any of engineers on job satisfaction.

(3) To study the effect of type of organization of engineers where they serve, if any on job satisfaction.

(4) To study the effect of number dependent of engineers, if any, on job satisfaction.

3.5 Formulation of Null Hypotheses:

It is fact that the hypotheses in any research work are very crucial and important. Without hypotheses, the research would go astray. It is said that the null-hypothesis is a Mariner's compass of research. That is why the investigator has formulated hypotheses in null form whenever they appropriate. The following four null-hypotheses were formulated while fifth null-hypothesis was of a general nature pertaining to the interactive effects on the independent variables for job satisfaction.
3.4 **Objectives of the study:**

The main objectives of the present study are as under:

(1) To study and compare the level of job satisfaction of high self-awareness engineers and low self-awareness engineers.

(2) To study the effect of education if any of engineers on job satisfaction.

(3) To study the effect of type of organization of engineers where they serve, if any on job satisfaction.

(4) To study the effect of number dependent of engineers, if any, on job satisfaction.

(5) To study the correlation, if any, between self-awareness and job satisfaction.

3.5. **Formulation of Null Hypotheses:**

It is fact that the hypotheses in any research work are very crucial and important. Without hypotheses, the research would go astray. It is said that the null-hypothesis is a Mariner's compass of research. That is why the investigator has formulated hypotheses in null form whenever they appropriate. The following four null-hypotheses were formulated while fifth null-hypothesis was of a general nature pertaining to the interactive effects on the independent variables for job satisfaction.
Ho: One: There is no significant mean difference between the scores of job satisfaction of the engineers who are at high and low levels of self-awareness.

Ho: Two: There is no significant mean difference between the scores of job satisfaction of the engineers who hold degree as well as diploma certificates.

Ho: Three: There is no significant mean difference between the scores of job satisfaction of the engineers who are working in Government as well as in Private organizations.

Ho: Four: There is no significant mean difference between the scores of job satisfaction of the engineers who have less than three dependents in family and more than three dependents in the family.

Ho: Five: There is no interaction between/among the various independent variables.

3.6. Variables:

The present study was designed to investigate the effect of four independent variables shown as below:

(a) Independent variables:

(i) Degree of self-awareness (A) of the respondents were included viz., (1) High self-awareness (HSA) $A_1$ and (2) Low self-awareness (LSA) $A_2$.
(ii) Education (B): Subjects were included at two levels viz., (1) degree holder \( B_1 \) and Diploma/Certificate holder \( B_2 \).

(iii) Type of Organization (C): Subjects were included at two levels viz., (1) those who are serving in Government organization - \( C_1 \) and (2) in Private organization - \( C_2 \).

(iv) Number of dependent (D): Subjects were included at two levels viz., (1) those who have less than three dependents in family - \( D_1 \) and more than three dependents in family - \( D_2 \).

(b) Dependent Variable:

The investigator has measured job satisfaction of subjects. The score achieved by each subject on job satisfaction scale were considered as dependent variable for data analysis.

In nut cell, the above variables can be tabulated as under:
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of variable</th>
<th>Nature of variable</th>
<th>Nomenclature</th>
<th>Level</th>
<th>Measuring tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Degree of self-awareness</td>
<td>Independent variable</td>
<td>A</td>
<td>A₁: High self-awareness</td>
<td>Questionnaire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A₂: Low self-awareness</td>
</tr>
<tr>
<td>2.</td>
<td>Education level</td>
<td>Independent variable</td>
<td>B</td>
<td>B₁: Degree</td>
<td>Questionnaire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B₂: Diploma</td>
</tr>
<tr>
<td>3.</td>
<td>Type of organization</td>
<td>Independent variable</td>
<td>C</td>
<td>C₁: Government service</td>
<td>Questionnaire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C₂: Private service</td>
</tr>
<tr>
<td>4.</td>
<td>Number of dependent variable</td>
<td>Independent variable</td>
<td>D</td>
<td>D₁: Less than three</td>
<td>Questionnaire</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D₂: More than three</td>
</tr>
<tr>
<td>5.</td>
<td>Job satisfaction</td>
<td>Dependent variable</td>
<td>Score on job satisfaction</td>
<td>Questionnaire</td>
<td></td>
</tr>
</tbody>
</table>

### 3.7 Selection of Experimental Design:

The question was posed as to which experimental design be selected. The experimenter’s stated objectives among others were as under:

1. He wanted to study the main effect as well as the interaction effect of four independent variables.
2. He wanted to execute the experiment as speedily as he could, regardless of cost.
(3) He realized that controlling human factor was a difficult task.

(4) He wanted to analyse the data in a straightforward manner without any ambiguity.

Looking to the above objectives, many experimental designs would come forward to claim for their right viz., Randomized block design, Repeated measures design, Factorial design and others. All would satisfy some of the above objectives but Factorial design would satisfy all and sundry objectives of the experimenter. There are also drawbacks of the factorial design in considering the cost and large number of sample size required for experiment.

Looking to the above discussion, the experimenter choose to go for factorial design of $2 \times 2 \times 2 \times 2$ dimensions in order to arrive at valid conclusions. The sixteen cells of the experiment would demand large sample size. The cell size for $2 \times 2 \times 2 \times 2$ factorial design had kept at 30 for more accuracy and better approach for interpreting and results. It is now highly desirable that the whole experimental design together with treatment should be given in a tabular form as a ready reckoner. Table 3.2 gives the schematic representation of the $2 \times 2 \times 2 \times 2$ factorial design.
TABLE: 3.2
Factorial Design (2 x 2 x 2 x 2)
n = 30, N = 480

DEGREE OF SELF-AWARENESS

A (Level of self-awareness)

<table>
<thead>
<tr>
<th>A_1 (High self-awareness (HSA))</th>
<th>A_2 (Low self-awareness (LSA))</th>
</tr>
</thead>
<tbody>
<tr>
<td>B_1 (Government Engineers)</td>
<td>B_2 (Private Engineers)</td>
</tr>
<tr>
<td>C_1 (More than 3 dependents)</td>
<td>C_2 (Less than 3 dependents)</td>
</tr>
<tr>
<td>C_1 (More than 3 dependents)</td>
<td>C_2 (Less than 3 dependents)</td>
</tr>
<tr>
<td>C_1 (More than 3 dependents)</td>
<td>C_2 (Less than 3 dependents)</td>
</tr>
</tbody>
</table>

B (Type of Organization)

C (Education)
The above design is called Ex-post factor design because the job satisfaction have been shown by the respondents before the survey has been undertaken. Kerlinger (1973) called this type of design as ex-post facto. Thus, the four independent variables and their levels are shown in the schemata on Table: 3.2.

3.8. Nature of the study:

The present study is an ex-post factor correlational research which study the nature of independent variables manipulated through selection. In the present study four independent variables, i.e., level of self-awareness, type of organizations, education and No. of dependents and on the other hand one dependent variable i.e., job satisfaction is employed.

The study has factorial design in which each independent variable varies at two levels. Hence there will be sixteen sub-groups and in each group the number of respondents will be 50 engineers. The comprehensive study attempt to collect information on job satisfaction on scale of Breyfied A.H. and Rothe H.A. (1951). Its chief focus is to study the job satisfaction differences of engineers having different levels of self-awareness.
3.9 **Sample:**

The work has been mainly individual testing at different places as well as different areas within the State. While selecting the sample, the investigator has kept a few points in his mind. They are as under:

- Availability of the respondents
- Nature of the self-awareness, and
- Job satisfaction test and the
- Situation where the present study was conducted.

In the initial stage, a large sample of 1000 engineers working in the Government and Private companies was taken randomly. The final sample consisted of 480 engineers of Rajkot and Junagadh districts of Saurashtra region. They were all serving in the Government P.W.D. Department and in private builders. In order to ensure the representativeness of the sample, the following procedure was employed.

First, the investigator obtained full information from Government P.W.D. Departments as well as from the Association of Civil Engineers who engaged in private firms about the number of engineers in Rajkot and Junagadh districts.

The subjects were selected from Government and Private Organizations of Saurashtra region considering the other independent variables in mind. Firstly, 700 engineers were taken for preliminary sample and final sample consisted
of 480 respondents. In terms of actual figures, out of the total 480 Ss, 240 each were selected from the two degree of self-awareness out of the 240 subjects from each level of self-awareness, 120 subjects were belonging to Government agency and the remaining were from private agency. Again out of 120 subjects 60 engineers have degree qualification and other 60 have diploma education. 30 subjects have less than 3 dependents in family and others have more than three dependents. Thus, the study was conducted with an experimental factorial design 2 x 2 x 2 x 2 with 30 numbers of subjects in each cell.

3.10. Tools:

For the present investigation, two tools were used, namely (i) self-awareness inventory and (ii) Job satisfaction scale.

(i) Self-awareness inventory (Nichard C.N. 1959)

This inventory measures the openness to experiences manifested in the awareness of different kinds of experiences. It has seven categories, viz., Aesthetic sensitivity Vs Insensitivity, usual perception and associations; openness to theoretical or hypothetical ideas, constructive utilization of fantasy and dreams; openness to unconventional view of reality Vs. adherence to mundane material reality, Indulgence in fantasy Vs avoidance of fantasy and deliberate and
systematic thought. The inventory comprised of 83 true/false type statements. One point or one mark is credited for every answer that agrees with the key. It is evident that self-awareness score of any individual respondent may range between 0 and 83. Higher or more naturally indicates a higher level of self-awareness.

The self-awareness inventory was translated and adopted in Gujarati by Dr. J.C. Parikh, Department of Psychology, Sardar Patel University, Vallabha Vidyanagar. It is a handy tool for measuring the level of self-awareness of young and adult individuals.

The reliability of the inventory has been established by test-retest method. The reliability coefficient found out by test-retest method is 0.89.

Self-awareness inventory is a group test which enhances its usability. It required forty minutes for completion.

(ii) Job satisfaction scale: (Breyfied A.H. and Rothe H.F. 1951)

This scale JSS is measuring general overall satisfaction of individual towards job as well as life. It consists of 18 items with five points. Scale with the range of most agreement to most disagreement responses which are scored 1 to 5 and summed, the possible range of score was between 18 and 90.
Half of the items were scored in reverse order. It is an excellent easily available tool for measuring job satisfaction of the subject. The measure is designed to be applicable to a wide variety of jobs.

A Gujarati adaptation was done by Dr. J.C. Parikh and used by many researchers in Gujarati language. It has .87 reliability coefficient by split half method. For establishing the validity of the scale similar scale (Lahiri and Srivastava, 1967) was given to a group of one hundred engineers under study. The validity coefficient was found to .56. Looking to the above characteristics of the scale, it could be said that the scale is quite reliable and valid for measuring job satisfaction of engineers.

3.11. Procedure:

'In order to isolate high self-awareness and low self-awareness engineers, purposive sampling method was resorted to 1000 engineers working in Government Civil Department and Private Construction organization located at Saurashtra region of Gujarat State, were administered self-awareness inventory which was considered valid and reliable for the purpose.

The cut-off scores for high self-awareness engineers and low self-awareness engineers were determined by computing $Q_1$ and $Q_3$ values from the self-awareness scores of all the engineers.
The high self-awareness and low self-awareness engineers amounting to 480 were administered the job satisfaction scale. The scores on job satisfaction were treated as dependent variable.

Precautions were taken during the administration that it was administered before recess in separate room individually to avoid any disturbance. The administration work was carried out within six months' span. This span was necessary because to get the respondents for the study.

3.12. **Statistical Analysis:**

Responses on job satisfaction scale of subjects forming a $2 \times 2 \times 2 \times 2$ factorial design was scored as per procedure given in the manual of job satisfaction scale and analysed by the statistical techniques of analysis of variance in order to study the main as well as interaction effects of the four variables viz., degree of self-awareness, education, type of organization, and number of dependents, as in a factorial design.

All the results have been tabulated in appropriate tables and graphs and discussed in the next chapter. The last chapter summarises the work undertaken, along with the main findings, pertaining to the contribution of the factors under study. Some implications and suggestions have also been involved at the end.