CHAPTER III

RESEARCH METHODOLOGY.
3.1 Introduction:

In this chapter various aspects pertaining to the research methodology adopted by the researcher to carry out the present empirical study are discussed.

The present study focuses on the issues related to the field of sociology of work. Basically, it is an attempt to study the influence of the production technology on the workers. Firstly, it attempts to ascertain the influence of a particular type of production system viz., the ‘Assembly line / small batch production system’ on the Work alienation, Leisure orientation and Leisure participation aspects of the assembly line workers. Secondly, it attempts to ascertain the influence of the consequential ‘work alienation’ on the ‘leisure behavior’ of the assembly line workers in terms of the their Leisure orientation and Leisure participation.

From the theoretical point of view, the study attempts to verify the validity of the theoretical models proposed by sociologists to explain the ‘work-leisure relations.’ From the application point of view it is an attempt for exploring suitable HR intervention strategies that can be worked out for the enhancement of the quality of the work life of the workers both inside and outside their place of work.

In order to fulfill this broader objective, the researcher has to make certain appropriate methodological decisions. Some of the important methodological decisions thus arrived at and the strategies thus worked out for carrying out the present research work are as follows:

3.2 Objectives of the Study.

(1) To study the nature and level of Worker alienation, Leisure orientation and Leisure participation among the Assembly-line workers.

(2) To examine the relationship between Worker alienation and Leisure orientation among the assembly line workers.

(3) To examine the relationship between the Worker alienation and Leisure participation among the assembly line workers.

(4) To examine the relationship between Leisure orientation and Leisure participation among the assembly line workers.
3.3 Concepts used in the study and operational definitions.

In the present study the following four basic independent and interrelated concepts are used.

1. Assembly line (or) Mass production technology (or) Small batch production.
2. Worker Alienation.
3. Leisure orientation.
4. Leisure participation.

All the concepts are operationally defined as given below for the purposes of carrying out the study:

(a) **Assembly line (or) Mass production technology (or) Small batch production.**

   Assembly line (or) Mass production technology in the present study refers to the framework adopted by Joan Woodward (1965) in her classification of the three types of production technologies adopted in the manufacturing industries.

(b) **Worker alienation:**

   Worker alienation in this study refers to the five modalities of alienation as classified by *Seeman (1959)* and as operationalized by *Kohn (1976)* after due updation to the setting of the study.

(c) **Leisure orientation:**

   The term leisure orientation in this study refers to one’s disposition to and awareness about leisure and the possible outcomes one expects from one’s leisure time. (*Zahariadis, Greece and Biddle; Trembath, Szabo and Baxter*)

(d) **Leisure participation:**

   It refers to actual activity of one’s choice and activity participation undertaken during one’s leisure time. (*Zahariadis, Greece and Biddle; Trembath, Szabo and Baxter*)
1. Variables used in the study:

Isically the study focuses on ascertaining the relationship between the selected organizational variable viz., Production technology (Assembly line production (or) Mass production technology (or) Small batch production) and a set of individual variables viz., ‘Work alienation’, ‘Leisure orientation,’ and ‘Leisure participation’

From the point of view of the independent and dependent variable category, the organizational variable (Assembly-line production technology) is used as independent variable throughout the study. On the other hand, the individual variables (‘Work alienation’, ‘Leisure orientation,’ and ‘Leisure participation’) are used as dependent variables.

As far as the dependent variable ‘Work alienation’ (for the independent variable Assembly-line technology) is concerned, it is also used as an Independent variable when it comes to the other two dependent variables viz., Leisure orientation, and Leisure participation.

Besides this, several other personal and individual characteristics pertaining to the study group are considered as the personal (socio-economic) variables under the following groupings:

1. Personal characteristics: Age and Type of education.
2. Social characteristics: Religion, Marital status, Type of family and Daily leisure time availability.
4. Political characteristics: Participation level in union and political activities.
5. Employment characteristics: Work experience, Time taken for travel to work, Job category, Department of work and Location of the work unit.
5 Dimensions of the variables used in the study:

Since the key independent variable ‘Assembly line production technology’ is used solely as a reference variable to understand its bearing on all the three dependent variables stated above, it is considered as a whole without any dimensional assessment (first level independent variable). To that effect this particular variable is not considered as such for the analysis of data.

On the other hand, all the three dependent variables (‘Work alienation’, ‘Leisure orientation,’ and ‘Leisure participation’) and in particular the dependent variable ‘Work alienation’, which has the distinction of serving as the second level independent variable for the other two dependent variables (Leisure orientation,’ and ‘Leisure participation’), are seen in terms of their respective dimensions as given below for the purposes of tool construction and analysis.

Review of literature (Melvin Seeman, 1959; Joseph, Jerome, 1981; Kamaraj, 1998; Chandramohan Reddy and Udhaya Kumar, 1998) indicated that the independent -cum- dependent variable ‘Worker alienation’ used in the study has the following five modalities / dimensions.

1. Powerlessness.
2. Meaninglessness.
3. Normlessness.
4. Isolation.
5. Self-estrangement

The dependent variable ‘Leisure orientation’ is observed to have approached on the following different dimensions. (Zahariadis, Greece and Biddle; Trembath, Szabo and Baxter)

1. Skill orientation.
2. Achievement orientation.
4. Team / Group orientation.
5. Affiliation orientation.
6. Health / Fitness orientation.
7. Economic orientation.
8. Compensatory orientation.
10. Social orientation.

Likewise, it is understood that the dependent variable ‘Leisure participation’ has to be necessarily studied on the dimensions of (Promila Sharma, 1990)

(i) Participation in Institutional leisure
(ii) Participation in Self-sponsored legitimate leisure
(iii) Participation in Self-sponsored Tabooed leisure.

Here, it is to be noted that the two leisure participation dimensions - Institutional leisure and Tabooed leisure- are well defined in terms of the nature and the kind of the activities included in the respective categories vis-à-vis the leisure facilities provided by the employing organization or the activities undertaken by the workers, and which has a culture specific normative value attached to it as bad or forbidden. Hence, it is possible to categorize these two dimensions without any sub-dimensional perspectives in them.

On the other hand, the third dimension (i.e.) Participation in self-sponsored legitimate leisure includes a wide array of different kinds of activities which cannot be brought under a single category as is possible in the cases of Institutional leisure and Tabooed leisure. This necessitates the need for further grouping and categorization of the activities that fall under the self-sponsored legitimate leisure to make sense out of this variable. Therefore for the purposes of the present study the dimensions of self-sponsored legitimate leisure participation is approached through six sub-dimensions as given below (Panagiotis N. Zahariadis, Thessaloniki, Greece and Stuart J.H Biddle; Elianne M. Trembath, Attila Szabo and Micheal J. Baxter; R.K. Gupta and G.S. Saini (1979):

a. Entertainment and literary activities.
b. Community participation / work
c. Social relations.
d. Religious activities.
e. Self-development.
f. Familial support services / Domestic activities.

Hypotheses.

The reviews of the studies explaining work-leisure relations and the issues addressed by the present study has led to the conclusion that there are not many a number of studies available directly addressing the theoretical concerns focused by the present study. Even those studies, which focus on the key areas covered by the present study do not encompass all the three variables (work alienation, leisure orientation and leisure participation) and explain the relationship among them. To that extent the present study can be considered exploratory in nature. When a research is conducted under such circumstances the researcher will be handicapped to make a categorical assumption on the direction or the magnitude of relationship among the variables. Thus, one is reluctant to make any commitment until the null hypothesis of no relationship is rejected. (Nan Lin, 1976; Jerome D. Joseph: 1981).

On the basis of the above-mentioned methodological consideration the present study is guided by the following three basic null hypotheses.

1. There is no relationship between Worker alienation and Leisure orientation among the Assembly line workers.
2. There is no relationship between the Worker alienation and Leisure participation among the Assembly line workers.
3. There is no relationship between Leisure orientation and Leisure participation among the Assembly line workers.

However, in order to understand the specific relationships between the selected personal variables and the key variables, as well as between each of the key variables the following categories of specific null hypotheses are constructed to put them to test.
Category-I

(Personal variables Vs Key variables)

1. There is no relationship between the selected personal variables and the overall worker alienation among the assembly line workers.

2. There is no relationship between the selected personal variables and the dimensions of worker alienation among the assembly line workers.

*   *

3. There is no relationship between the selected personal variables and the overall leisure orientation among the assembly line workers.

4. There is no relationship between the selected personal variables and the dimensions of Leisure orientation among the assembly line workers.

*   *

5. There is no relationship between the selected personal variables and the overall Leisure participation among the assembly line workers.

6. There is no relationship between the personal variables and the dimensions of Leisure participation among the assembly line workers.

Category- II

(Relationship between key variables with respect to the selected personal variables.)

1. There is no association between Worker alienation and Leisure orientation among the assembly line workers with respect to the personal variables.

2. There is no association between Worker alienation and Leisure Participation among the assembly line workers with respect to the personal variables.

3.7 Tools of data collection.

A structured questionnaire was used for collecting necessary data. The questionnaire consists of three major parts in the form of three different scales

1. Work alienation measurement scale.

2. Leisure orientation measurement scale.

3. Leisure participation measurement scale.
Taking into consideration the ordinal nature of all the three variables (Earl Babbie, 1995) and on the basis of the review of the studies carried out, it was decided to adopt Likert type of scaling technique to construct the scales for the present study. Besides the three scales, the questionnaire in its fourth part also covers the questions on the personal details of the respondents.

**Part-I: Work alienation measurement scale.**

The alienation scale used in this study is constructed by adopting the scales used by Vendal (1981); Jerome (1981), Kamaraj (1998) and Chandaramohan Reddy and Udhyakumar (1998), for measuring the level of worker alienation in their studies. The scale constructed for the present study consists of an equal number of ten items on each of the five dimensions of alienation and thus a total of 50 items are there in the scale to measure the level of alienation. The statements are carefully constructed to reflect the nature of the assembly-line job with a five-point response category. The response category Strongly agree (S.A.) which is an indicator of high alienation is assigned the maximum point value of 4 and on the other extreme the response category Strongly disagree (SDA) which is an indicator of no alienation is assigned ‘0’ point value. The in-between response categories viz., Agree to some extent (ASE), Neither agree nor disagree (NA / DA) Disagree (D.A.) are assigned the point values of 3, 2, and 1 respectively.

**Part-II: Leisure orientation scale.**

Adopting the model of the Leisure Interest and Leisure Participation scale developed by Peace (1941) and the concepts and tools used in the research study “Leisure time activities of Teachers in High schools in Madras city” (1978-1979) conducted by the Department of education, University of Madras, the researcher constructed a Leisure orientation scale to measure the leisure orientation of the assembly-line workers under study. This scale is constructed covering all the ten dimensions of Leisure orientation listed above. Each of the dimensions under study is confirmed by an equal number of four statements reflecting the various aspects of the respective dimension. The Leisure orientation scale thus constructed is made up of a total number of 40 items with a five-point response category Strongly
Agree (4 points); Agree to some extent (3 points); Neither agree nor disagree (2 Points); Disagree (1 point) and Strongly disagree (0 Points).

**Part-III: Leisure participation scale.**

Following the model of the survey questionnaire developed by Promila Sharma (1990), the researcher constructed a composite scale for measuring the Leisure participation level of the workers. This scale consists of three sections (sub-scales).

**Section-A:** It includes the sub-scale constructed for ascertaining the level of workers' participation in the organization sponsored leisure activities (Institutional leisure). Through the pilot study it has been ascertained that seven different types of leisure / recreational facilities are provided by the management of FAL Industries for the benefit of their workers. All the seven activities are listed out in this section and the workers' participation level in them are ascertained on a five point scale with response categories Very often (4 points), Often (3 Points), To some extent (2 Points), Rarely (1 point) and Never (0 point).

**Section- B:** It consists of the sub-scale constructed to ascertain the level of participation in self-sponsored legitimate leisure activities. It consists of an equal number of five statements with regard to each of the six categories of self-sponsored legitimate leisure specified above. All the statements are attached with a five-point response categories Very often (4 points), Often (3 Points), To some extent (2 Points), Rarely (1 point) and Never (0 point).

**Section-C:** This part is made up of the sub-scale to measure the assembly line workers' participation in Tabooed leisure activities. It includes five different kinds of tabooed activities. The respondents are expected to indicate their level of undertaking / participation in those activities on a five-point scale with response categories Very often (4 points), Often (3 Points), To some extent (2 Points), Rarely (1 point) and Never (0 point).
The questionnaire was also constructed with necessary instructions printed in the questionnaire for the respondents to read and fill in by themselves.

3.8 Validation of the tool of data collection:
All the three scales used in the study are designed to specifically fulfill the objectives stated for the present study. To that extent they are bound by the constraints of the local culture and situation. Hence, it was necessary to validate the tool before it was used for actual data collection.

The pre-validated questionnaire is originally constructed with:
1. Alienation measurement scale with 12 statements on each of the five dimensions of alienation (total 60 statements).
2. Leisure orientation scale with 52 items (Skill orientation- 5; Achievement orientation-6; Energy orientation- 5; Team orientation- 5; Affiliation orientation-5; Fitness orientation-5; Economic orientation- 5; Compensatory orientation- 6; Spill-over orientation- 5; and Social orientation- 5), and
3. Leisure participation scale with an overall total of 52 items distributed among the subscales as shown below.
   (a) Sub-scale for measuring the participation in Institution provided leisure activities- 7 items,
   (b) Sub-scale for measuring the participation in self-sponsored legitimate leisure – 40 items (Entertainment and Literary activities- 9; Community work- 5; Social relations- 4; Religious activities- 5; Self-development- 8; Familial support service / Domestic activities- 6; Income generating activities- 3.)
   (c) Sub-scale for measuring the participation in self-sponsored tabooed leisure activities - 5 items.

For the purposes of validating the tool the researcher administered the questionnaire among 50 randomly chosen temporary assembly-line workers selected from the same universe (30 from Chennai and 20 from Hosur units of FAL Industries). All of them are carefully chosen to conform to the criteria that they are performing the same nature of job performed by the permanent workers. To conform with the
validity of the statements / items included in the scale, the dimension-based and total scale based item total correlation values were calculated for all the items. Accordingly in the first stage, based upon the dimension-wise alpha values (\( \alpha \)), all those scale items / statements which had less than 0.3 alpha values were eliminated. This led to uneven number of scale items / statements in some dimensions of the scales. For statistical purposes, the number of items / statements included in the sub-dimensions of the respective scales were made equal by comparing the dimension-wise and total scale alpha values. Through this exercise the final scales were worked out. The final dimension-wise / item-wise composition of the all the three scales are as follows:

1. **Work alienation measurement scale.**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Powerlessness</td>
<td>10</td>
</tr>
<tr>
<td>2. Meaninglessness</td>
<td>10</td>
</tr>
<tr>
<td>3. Normlessness</td>
<td>10</td>
</tr>
<tr>
<td>4. Isolation</td>
<td>10</td>
</tr>
<tr>
<td>5. Self-estranglement</td>
<td>10</td>
</tr>
</tbody>
</table>

2. **Leisure orientation scale.**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Skill orientation.</td>
<td>4</td>
</tr>
<tr>
<td>2. Achievement orientation.</td>
<td>4</td>
</tr>
<tr>
<td>3. Energy orientation.</td>
<td>4</td>
</tr>
<tr>
<td>4. Team / Group orientation.</td>
<td>4</td>
</tr>
<tr>
<td>5. Affiliation orientation.</td>
<td>4</td>
</tr>
<tr>
<td>6. Health / Fitness orientation.</td>
<td>4</td>
</tr>
<tr>
<td>7. Economic orientation.</td>
<td>4</td>
</tr>
<tr>
<td>8. Compensatory orientation.</td>
<td>4</td>
</tr>
<tr>
<td>9. Spillover orientation.</td>
<td>4</td>
</tr>
<tr>
<td>10. Social orientation.</td>
<td>4</td>
</tr>
</tbody>
</table>
### 3. Leisure participation scale.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Sub-dimension</th>
<th>No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institutional Leisure</td>
<td>---</td>
<td>7</td>
</tr>
<tr>
<td>2. Self-sponsored</td>
<td>Entertainment and literary activities. 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community participation / work 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social relations.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Religious activities.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Self-development.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Familial support services / Domestic activities</td>
<td>5</td>
</tr>
<tr>
<td>3. Self-sponsored</td>
<td>Tabooed leisure.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>---</td>
<td>5</td>
</tr>
</tbody>
</table>

### 3.9 Research Design.

Since the aim of the present study is the description of the nature of the concepts taken for the study in the given context and to ascertain the empirical relationship between them, descriptive and analytical study methods are used (*Sellitz, Johoda et.al., 1962; Kothari, 1990; Heppner, Kivilighan et.al., 1992*).

### 3.10 Research setting.

The present study is undertaken among the assembly-line workers of FAL Industries Ltd., The FAL Industries was started as an Indo- Swedish Joint venture between Forbes Group and FACIT AB Ltd., at Chennai, India to manufacture mechanical calculators and adding machines.

FAL has got two manufacturing plants in Tamil Nadu. Plant-I is at Perungudi, Chennai and Plant-II at SIPCOT Industrial Complex, Hosur. In both the units by adopting assembly-line type of production system (Small batch production), FAL produces diverse products such as Mechanical typewriters, Paper shredders;
Vacuum cleaners (Domestic & Industrial), Floor polishers, FHP universal motors (IMACO Motor), and Spot light assembly units. It has combined manpower strength of over 500 employees in the categories of permanent, temporary, apprentice, contract workers and management staff.

The production assembly unit at Chennai plant produces typewriters, vacuum cleaners, floor polishers and paper shredders. To produce these different and varied products, the whole production department is divided under 19 production units (Departments) Viz., Press, Plating, Paint room, Drilling, Riveting, Group Machine, Link & Rack milling, Segment, Assembly, Vacuum cleaner division, Cord winding, Plastics, Ink Bank Assembly, Inspection, Tool room and Technical services and others. In these departments both permanent and contract workers are engaged to carry out the work. The workers engaged in the production process are mostly skilled and are trained in the trade on the job itself. They are usually attached to one department with a fixed place of work and standard roles to perform. However, depending upon the type of the production orders, they may also be internally transferred to other departments for short periods. In the production line of the Chennai plant but for 6 women employees all others are male employees. In all, there were 178 permanent assembly line workers and 40 contract workers on the rolls at the time of the study.

In the Hosur plant, FHP Universal motors division (IMACO Motor) and Spot lighting assembly units division are functioning. While FAL has its own employees in FHP Motor division, the work in the Spot lighting division is completely outsourced and done by contract laborers. The work flow in the assembly line of the motors division is carried out in more than 20 work stations (departments) - Spindle driving, Techno washing, End insulation & slot insulation, Commutator fixing, Armature winding, Top insulation fixing, Armature welding, Hi-failure testing- to name a few. Most of the workers in the motor division belong to the skilled category and are usually attached to one department with a fixed place to work and standard roles to perform. The motor division employs only male workers. In all 95
permanent workers and around 24 trainee workers were working in this particular unit at the time of the study.

3.11 Universe and Sampling:
All the 437 assembly line workers (break-up is given below), working in both the plants of FAL Industries at the time of the study, formed the universe for the present study.

**Chennai Plant:** Total 218 Assembly-line workers. (178 permanent workers including 6 female workers and 40 contract workers)

**Hosur Plant:** Total 119 Assembly-line workers. (95 permanent workers and 24 contract workers with no female workers in the work force.)

However, for practical reasons it was decided to restrict the data collection only to the 273 permanent workers in the study. In the universe, it is noticed that the number of the female workers among the 273 permanent workers constitutes only 6 numbers. Further, it is also observed that all the female workers are employed at Chennai plant. Hence, for practical reasons it was also decided to exclude them. This reduced the available number of workers for the study to 267. Also, as per the instructions given by the management of FAL Industries, 8 Trade union office bearers (4 each at Chennai and Hosur Units) also need to be excluded from the available number of 267 respondents, thus reducing the available total to 259 permanent workers (Chennai- 168 and Hosur- 91).

In a case study like the present one, the exclusion of 78 units (around 15 %) for a universe size of 437 units is a considerable loss. Due to this reason the possibility of adopting a systematic stratified or proportionate random sampling procedure was not possible. On the other hand to avoid further loss of the units it was decided to cover all the 259 units in the study thus arrived through the judgment sampling (Census method) detailed as above (*Kothari, 1990; Anderson, Sweeney et.al., 2002; Cooper and Schindler, 2003; Laws, 2003.*
However, during the data collection, a further loss of another 20 workers at the Hosur plant was unavoidable due to the reasons beyond the control of the researcher. Workers’ long absence to duty, prevailing industrial relations climate and unwillingness of some of the workers to answer the questionnaire are some of the prominent reasons for this loss. The location being the outstation the researcher could not do much over these eventualities.

Thus, in total out of the 273 workers (permanent workers) in the universe 239 workers were covered by the study (Chennai - 168 respondents; Hosur- 71 respondents).

3.12 Data collection.

Through the pilot study the researcher came to know that, even though the respondents are literate they are not well versed in English. Hence, it was decided to translate the questionnaire in the local language (Tamil) and administer them. Subject experts’ opinion was obtained on the translated version of the questionnaire to confirm with the retention of the content before it was taken for pre-testing and validation. The researcher carried out the data collection by administering the questionnaire himself personally. In both the plants the researcher was given sufficient privacy to interview the respondents and to administer the questionnaire. The HR department officials helped in getting the workers deputed for data collection during the working hours and during the lean production period. By and large, the respondents read through and filled in the questionnaires by themselves. Many of them enjoyed answering the questionnaire since most of the statements in the questionnaire reflected the work related issues. However, some of them expressed apprehension on giving opinion over the management practices and their leisure habits. The questionnaires took on an average 30-40 minutes of time and the data collection process involved more than 3 months of field work.
3.13 Pilot study.
On several occasions the researcher visited both the plants to obtain permission for the study and to understand the nature of the production system adopted and to confirm with the content of the questionnaire before it was taken for validation. Several valid suggestions were given to include and delete certain questions and scale items included in the questionnaire due to the sensitive nature of the questions. For example, in the area of Self-sponsored Tabooed leisure on the basis of the suggestions offered by the HR manager, they were regrouped so as to reduce the sensitivity.

3.14 Data analysis.
To fulfill the objectives of the study, the data collected were analyzed by making use of SPSS package. More specifically in order to ascertain the nature of the hypothesized relationships between the variables, t-Test, ANOVA, Chi-square test and Multiple Regression Analysis were used in the study.

3.15 Organization of the study.
The study is organized under the following major headings:

Chapter – I : Introduction.
Chapter –II : Review of Literature.
Chapter – III : Research Methodology
Chapter – IV : Analysis of data and Interpretation.
Chapter – V : Findings and Conclusions.
Appendix- I : Bibliography.
Appendix- II : Questionnaire.

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